

DRAFT



Environmental Impact Report for the
Belden Barns Farmstead and Winery Project
State Clearinghouse No. 2015092031



JUNE 2016



Prepared for:
County of Sonoma
Permit and Resource Management Department
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Santa Rosa, California 95403

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DRAFT

**BELDEN BARNES FARMSTEAD AND WINERY
ENVIRONMENTAL IMPACT REPORT**

Prepared for:

County of Sonoma

Permit & Resource Management Department

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AASHTO	American Association of State Highway Transportation Officials
AB	Assembly Bill
ACM	asbestos-containing material
ADT	average daily traffic
AFY	acre-feet per year
amsl	above mean sea level
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
BVVC	Bennett Valley Visual Corridor
c/mvm	collisions per million vehicle miles
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Code
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CNRA	California Natural Resources Agency
CO ₂ E	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DDW	Department of Drinking Water
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESAL	Equivalent Single-Axle Loads
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FSM	Future Study Measure
GHG	greenhouse gas
GIS	geographic information system
gpd	gallons per day
GPM	gallons per minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
HAP	hazardous air pollutant
IPCC	Intergovernmental Panel on Climate Change
LID	Low Impact Development

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
LOS	Level of Service
MCL	maximum contaminant level
MMT	million metric tons
mpg	miles per gallon
mph	miles per hour
MS4	municipal separate storm sewer system
MT	metric ton
NAAQS	National Ambient Air Quality Standards
NCRWQCB	North Coast Regional Water Quality Control Board
NHTSA	National Highway Traffic Safety Administration
NPDES	National Pollutant Discharge Elimination System
OPR	Office of Planning and Research
OSRC	Open Space and Resource Conservation
PGA	peak ground acceleration
ppb	parts per billion
ppm	parts per million
PRMD	Sonoma County Permit and Resource Management Department
PSHA	probabilistic seismic hazard assessment
ROG	reactive organic gas
SB	Senate Bill
SCS	Sustainable Communities Strategy
SCTA	Sonoma County Transportation Authority
SDC	Seismic Design Category
SDWA	Safe Drinking Water Act
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SRI	Solar Reflectance Index
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TIA	Traffic Index
TIA	Traffic Impact Analysis
TMDL	total maximum daily load
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOC	volatile organic compound
WDR	Waste Discharge Requirement
ZEV	zero-emission vehicle

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The County of Sonoma (County) has prepared this environmental impact report (EIR) to provide the public and responsible agencies information about the potential adverse effects on the local and regional environment associated with the proposed Belden Barns Farmstead and Winery Project (proposed project). This Draft EIR has been prepared pursuant to the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Section 21000 et seq., and the CEQA Guidelines in the California Code of Regulations, Title 14, Section 15000 et seq.

An earlier version of the proposed project was evaluated in an Initial Study and Mitigated Negative Declaration in 2013 (see Appendix B of this EIR). As discussed in the Project Description, Section 2.4 Project Background, a lawsuit was filed challenging the Approved Project, and per the Settlement Agreement the County is preparing an EIR for the post-settlement project (revised project, herein referred to as the proposed project). Publication of the EIR marks the beginning of the 45-day public review period, during which written comments regarding the adequacy of this EIR may be submitted to the County's project planner:

Crystal Acker, Senior Environmental Specialist
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Following the public review period, the County will prepare a Final EIR, which will include responses to all substantive comments received during the EIR public review period and any necessary changes or adjustments to the text and analysis in the Draft EIR. The County may use this EIR to approve or modify the proposed project, make findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

ES.2 PROJECT DESCRIPTION

Project Location

The 55-acre project site is located at 5561 Sonoma Mountain Road in southeastern Sonoma County (Assessor's Parcel Number (APN) 049-030-010) approximately 5.5 miles west of Glen Ellen and 7 miles east of the City of Rohnert Park (see Figures 2-1 and 2-2 in Chapter 2, Project Description). The project site is located in the hills to the southeast of Santa Rosa at the base of Sonoma Mountain. The project area is a large lot, rural area with mixed pasture land and vineyards.

The project site is accessible via a private driveway off of Sonoma Mountain Road and is approximately 6 miles east of Highway 101 and 4.5 miles west of Highway 12.

Project Overview

The proposed Belden Barns Farmstead and Winery project (proposed project) involves winemaking, farmstead food production, and farmstead product and wine tasting on the project site. The farmstead products would include fresh/preserved vegetables/fruits, eggs, charcuterie, and cheeses. The proposed project would include three primary uses with supporting uses and structures: (1) production facility (creamery and winery facility), (2) farmstead and wine tasting room and hospitality building, and (3) agricultural promotional events.

The proposed project would involve the demolition of three existing structures (the existing barn and two legal non-conforming residences) totaling 6,555 square feet and the construction of 15,851 square feet of buildings, including a new 10,941-square-foot production facility, 3,033-square-foot tasting room, and 1,780-square-foot agricultural employee housing unit. Construction of the proposed project would occur within the existing development footprint and is estimated to occur over a 12–18 month period.

The project would include operation of a production facility capable of producing 10,000 cases of wine and 10,000 pounds of cheese per year. Regular hours for production would be 7:00 a.m. to 6 p.m., Monday through Friday. During harvest season, typically late August through mid-October, wine production hours would be 6:00 a.m. to 10:00 p.m., seven days per week. The tasting room would host by-appointment tastings between the hours of 11:00 a.m. and 5:00 p.m., seven days per week. Operation of the proposed project would include up to eight agricultural promotion events per year with 60–200 participants; events would end by 9:30 p.m. with cleanup being complete around 10 p.m. Parking for daily activities and promotional events would be provided on site.

The project would also include new and enhanced landscaping around the proposed new buildings, expansion of the existing vegetable garden from 1 to 2 acres, expansion of the fruit orchard from 1 to 2 acres, and livestock grazing on approximately 6 acres with up to two milk cows, five milk sheep, chickens, and four pigs. Infrastructure and utility improvements would also be implemented to support the proposed uses, with an expansion of the domestic water system, a new sanitary wastewater system, and improved drainage systems.

Project Objectives

The project objectives include the following:

1. Create an economically self-sufficient and viable business growing and selling wine and farmstead goods.

2. Construct and operate a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine each year, using primarily agricultural products grown on site.
3. For the purpose of on-site marketing, create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming and to the farmers, winemakers, and cheesemakers.
4. Provide on-site tasting and direct-to-consumer sales of farmstead products and wine, by appointment only.
5. Promote environmentally sustainable operations in all agriculture, production, and events.
6. Provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.
7. Provide agricultural promotional events that promote wine and farmstead products grown and produced on site.

ES.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table ES-1 presents a summary of potential environmental impacts that could result from the project. Only impacts identified as potentially significant or significant requiring mitigation are listed. For each significant impact, the table indicates the level of significance after mitigation. Please refer to Chapter 3, Environmental Analysis, in this EIR for a complete discussion of each impact. A reporting and monitoring program for all mitigation measures identified in this EIR would be prepared in accordance with the requirements of Public Resources Code Section 21081.

The proposed project, if implemented, could result in significant adverse environmental impacts. Mitigation measures proposed as part of the project, as well as measures identified by this EIR, would avoid or reduce all impacts to a less-than-significant level.

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
<i>Aesthetics</i>		
Impact AES-4: The project would create a new source of substantial light or glare which could adversely affect day or nighttime views in the area.	MM-AES-1: Prior to issuance of the Building Permit, an exterior lighting plan shall be prepared and submitted by the applicant to the Design Review Committee for review and approval. All exterior lighting shall be fully shielded and directed downward to prevent light trespass onto adjacent properties. Generally, light fixtures should accept sodium vapor lamps and shall not be located at the periphery of the property. The installation of floodlights shall not be allowed. Lighting shall be installed in accordance with the approved lighting plan and shall be reviewed on site by the Permit & Resource Management Department prior to issuance of certificate of occupancy.	Less than Significant

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
<i>Air Quality</i>		
<p>Impact AQ-5: The project would create objectionable odors affecting a substantial number of people.</p>	<p>MM-AQ-1: Pomace and other waste products from processing of agricultural materials shall be disposed of in a manner that does not create a discharge to surface water, or create nuisance odor conditions, or attract nuisance insects or animals, according to the following priority:</p> <ul style="list-style-type: none"> a. Agricultural waste products (pomace, cheese waste, etc.) shall be composted and land applied, or land applied and disked into the soil on vineyards or agricultural land owned or controlled by the applicant. b. Agricultural waste products (pomace, cheese waste, etc.) shall be sold, traded, or donated to willing soil amendment or composting companies that prepare organic material for use in land application. 	<p>Less than Significant</p>
<i>Biological Resources</i>		
<p>Impact BIO-1: The project would have a substantial adverse effect either directly or through the modification of suitable habitat, on sensitive bird and bat species, California red-legged frog, and western pond turtle.</p>	<p>MM-BIO-1: If construction activities are scheduled to occur during the breeding season for birds (February 1 through August 31), the following measures shall be implemented to avoid potential adverse effects to nesting raptors and other special-status or nesting birds:</p> <ul style="list-style-type: none"> • Preconstruction surveys by a biologist of all potential nesting habitats within 500 feet of the construction activities, where accessible, shall be conducted by a qualified biologist. Surveys shall occur no more than 14 days prior to the initiation of disturbance. • If active nests are found during preconstruction surveys, a no-disturbance buffer shall be created around active nests during the breeding season or until it is determined that all young have fledged. The buffers shall be established by the biologist in conjunction with the California Department of Fish and Wildlife. Typical buffers may include 500 feet for raptors and 50 to 250 feet for other special-status nesting birds and song birds based on the location of the nest, the nesting species present, and types of construction activities that may cause potential nest abandonment. The perimeter of the buffer zone shall be fenced or marked with staked flagging. • If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required, following submittal of a survey report letter to the County. <p>MM-BIO-2: Prior to demolition of the barn, the applicant shall hire a qualified bat and bird specialist to conduct a pre-demolition survey during the time when bats or birds would be expected to be present and active (i.e., spring) to determine the presence of roosting bats or nesting birds. If no evidence exists that either bats are roosting or birds are nesting in the barn, then no further mitigation is required.</p> <p>MM-BIO-3: If roosting bats or nesting birds are determined to be present, the applicant shall provide for a replacement roosting facility, in the form of either a bat house or several bat boxes, immediately adjacent to the barn, to the extent feasible. Based on recommendation from a bat and bird specialist, appropriate exclusion devices shall be installed to prevent roosting bats and nesting owls from being in the facility when demolition occurs. The replacement roosting facility shall be monitored</p>	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
	<p>weekly during the first month after installation and then once every 3 months until activities are completed to document bat utilization.</p> <p>MM-BIO-4: The project shall be subject to County Code Section 7-14.5 Stream setback for structures requiring a building permit as well as to County Code Section 11.16.130 setback for streams, Section 11.16.140 for ponds and County Code Chapter 26, Article 65 RC Riparian Corridor Combining Zone.</p> <p>For the unnamed drainage along the western side of the construction area, a setback line shall be established 30 feet from the top of the bank using construction fencing "NOTE ON SITE PLAN": Structures, roads, utility lines, parking lots, lawns, agricultural uses (planting, grazing, etc.), grading, fill, and excavation shall be prohibited in this conservation area [An exception to this prohibition may be approved with a use permit if a conservation plan is adopted that provides for the appropriate protection of the biotic resources, water quality, floodplain management, bank stability, groundwater recharge, and other applicable riparian functions. Off-site mitigation shall be considered only where on-site mitigation is infeasible or would provide superior ecological benefits, as determined by the director.]</p> <p>A streamside conservation area line shall be established 50 feet from the top of the higher bank of South Fork Matanzas Creek. NOTE ON SITE PLAN: Grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots shall be prohibited within this conservation area except as allowed by Section 26-65-040.</p> <p>A setback of at least 50 feet from the high water mark of the irrigation pond shall be established prior to ground disturbance.</p> <p>The development plans shall present the setbacks associated with each of the county code sections detailed above. The development plans shall be subject to review and approval by the Grading & Storm Water Section, the Building Division and/or the Planning Division of the Permit and Resource Management Department prior to the issuance of any building or grading permits.</p> <p>MM-BIO-5: The following measures shall be implemented to protect potential special-status amphibian and reptile species, aquatic habitat, and overland migration or aestivation habitat:</p> <ul style="list-style-type: none"> • Based on the availability of suitable upland habitat surrounding the pond, a buffer area of 75 feet shall be established to provide sufficient refugia for frogs around the perimeter of the irrigation pond. This buffer distance shall be sufficient to maintain the essential features of the pond habitat (Fellers and Kleeman 2007). Vegetation within this 75 foot buffer area shall remain in a relatively natural state (i.e., no mowing or vegetation removal, spraying, or other ground disturbance/maintenance activities unless specified for safety and fire prevention). Additionally, the area between the pond and the South 	

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
	<p>Fork Matanzas Creek in the southwestern corner of the property shall remain as grassland habitat since this is the most likely path for frogs to use when dispersing from the pond (if present). This mitigation measure does not apply to light livestock grazing in this area, as it would be an acceptable practice and would not interfere with movement of frogs to and from the pond.</p> <ul style="list-style-type: none"> • To ensure that the irrigation pond is managed to protect California red-legged frog, water withdrawal from the pond shall not occur from December through May 1 each year to avoid stranding eggs above the water line, and to avoid entrainment of tadpoles through the intake water structure at the eastern end of the pond. Additionally, the intake pipe shall be fitted with a passive intake screen (with a mesh size of 0.25 inch) that allows withdrawal of water at a low, uniform velocity. • Prior to initiation of construction, a qualified biologist shall conduct a training session for all construction personnel. The training shall include a physical description of California red-legged frog and western pond turtle, their habitats, general measures that are being implemented for their protection, and what to do in the event one of these species is discovered in the construction area. • Prior to initiation of ground-disturbing activities, a qualified biologist shall conduct preconstruction surveys for the presence of special-status amphibian or reptile species. Burrows that may provide potential aestivation habitat for California red-legged frog shall be scoped. • Ground-disturbing activities shall only be conducted during dry conditions (primarily between July 1 and October 31), no more than 48 hours prior to or after a rain event. • If at any time during preconstruction surveys or construction of the project a special-status amphibian or reptile is discovered, construction shall be halted, and the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife shall be consulted. 	
<p>Impact BIO-2: The project would have the potential to indirectly affect riparian habitat .</p>	<p>See MM-BIO-4</p>	<p>Less than Significant</p>
<i>Cultural Resources</i>		
<p>Impact CUL-2: The project could cause a substantial adverse change in the significance of an archaeological resource.</p>	<p>MM-CUL-1:</p> <ol style="list-style-type: none"> a. There shall be an archaeological or tribal monitor present during all initial ground-disturbing activities into native soils on the project. IF the archaeologist or tribal monitor determine, based on their knowledge and experience, that there is no further need for monitoring, the monitoring may cease. b. All building and/or grading permits shall have the following note printed on plan sheets: "In the event that archaeological resources such as pottery, arrowheads, midden or culturally modified soil deposits are discovered at any time during grading, scraping or excavation within the property, all work shall be halted in the vicinity of the find and County PRMD project Review staff shall be notified 	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
	<p>and a qualified archaeologist shall be contacted immediately to make an evaluation of the find and report to PRMD. PRMD staff may consult and/or notify the appropriate tribal representative from tribes known to PRMD to have interests in the area. Artifacts associated with prehistoric sites include humanly modified stone, shell, bone or other cultural materials such as charcoal, ash and burned rock indicative of food procurement or processing activities. Prehistoric domestic resources include hearths, firepits, or house floor depressions whereas typical mortuary resources are represented by human skeletal remains. Historic artifacts potentially include all byproducts of human land use greater than 50 years of age including trash pits older than 50 years of age. When contacted, a member of PRMD project Review staff and the archaeologist shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery. PRMD may refer the mitigation/protection plan to designated tribal representatives for review and comment. No work shall commence until a protection/mitigation plan is reviewed and approved by PRMD project Review staff. Mitigations may include avoidance, removal, preservation and/or recordation in accordance with California law. Archeological evaluation and mitigation shall be at the applicant's sole expense.</p> <p>If human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and PRMD staff, County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American, the Native American Heritage Commission must be contacted by the Coroner so that a "Most Likely Descendant" can be designated and the appropriate provisions of the California Government Code and California Public Resources Code will be followed."</p>	
<p>Impact CUL-4: The project could disturb human remains, including those interred outside of formal cemeteries.</p>	<p>See MM-CUL-1</p>	<p>Less than Significant</p>
<i>Geology and Soils</i>		
<p>Impact GEO-2: The project could result in substantial soil erosion or the loss of topsoil.</p>	<p>See MM-HYD-1</p>	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
<i>Hazards and Hazardous Materials</i>		
<p>Impact HAZ-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.</p>	<p>MM-HAZ-1: During construction, hazardous materials shall be stored away from drainage or environmentally sensitive areas, on non-porous surfaces. Storage of flammable liquids shall be in accordance with Sonoma County Fire Code.</p> <p>A concrete washout area, such as a temporary pit, shall be designated to clean concrete trucks and tools. At no time shall concrete waste be allowed to enter waterways, including creeks and storm drains.</p> <p>Vehicle storage, fueling and maintenance areas shall be designated and maintained to prevent the discharge of pollutants to the environment. Spill cleanup materials shall be kept on site at all times during construction, and spills shall be cleaned up immediately. In the event of a spill of hazardous materials, the applicant will call 911 to report the spill and take appropriate action to contain and clean up the spill.</p> <p>Portable toilets shall be located and maintained to prevent the discharge of pollutants to the environment.</p>	<p>Less than Significant</p>
<p>Impact HAZ-2: The project could create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	<p>See MM-HAZ-1</p>	<p>Less than Significant</p>
<i>Hydrology and Water Quality</i>		
<p>Impact HYD-1: The project could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality.</p>	<p>MM-HYD-1: Final Standard Urban Stormwater Mitigation Plan. The applicant shall prepare a Final Standard Urban Stormwater Mitigation Plan (SUSMP) that demonstrates consistency with the requirements and standards in the currently adopted version of the <i>Storm Water Low Impact Development Technical Design Manual</i>. The applicant shall provide the Final SUSMP to the Engineering Section of the Permit and Resource Management Department as a condition of grading permit approval. Engineering Section staff shall not sign-off building or grading plans for issuance until they are satisfied that the plans meet all stormwater best management practices. Final occupancy shall not be issued until correct installation has been verified by Engineering Section staff.</p> <p>The Final SUSMP shall identify all pollutants sources, including livestock operations, and incorporate source control Best Management Practices (BMPs) that avoid sources of nutrients, pathogens, and other pollutants within stormwater runoff. At a minimum, these measures shall include:</p> <ul style="list-style-type: none"> • Concentrated runoff shall be avoided in areas that may contain manure, such as pasture and animal enclosures. Animals shall be excluded from 	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
	<p>grazing within 30 feet of the top of bank of the ephemeral drainage course on site.</p> <ul style="list-style-type: none"> • Rotations and grazing timing/seasonal use shall be managed in pasture areas to avoid overgrazing and erosion (i.e., decreased infiltration of stormwater water and increased potential for sediment and nutrients to reach local creeks). • Animal enclosures shall be kept clean and mud-free, and manure shall be regularly removed and composted. Manure that is not composted should be stored under cover and in an area that will not have contact with stormwater runoff, using a tarp or a properly sized manure storage area that has a roof. • The landscape shall be designed to minimize use of fertilizers and pesticides. • All dumpsters and/or recycling containers shall be contained within a roofed and enclosed area, or an area that directs runoff to the on-site wastewater treatment system. Litter and trash shall be contained so that it is not dispersed by the wind or runoff during waste removal. • Loading/unloading and cleaning/processing areas associated with the production facility shall be indoors or in a roofed area outdoors plumbed to the sanitary wastewater system. These areas shall be designed to prevent stormwater run-on from entering the wastewater treatment system and to prevent stormwater run-off from carrying pollutants to the bioswales or intermittent drainage. <p>The applicant shall inspect and maintain the stormwater drainage facilities in accordance with the SUSMP. The applicant shall assure that all BMPs remain fully functional and that all areas identified in the SUSMP for treatment or volume capture discharge to the specified BMP as designed. The applicant shall, at a minimum, conduct annual inspections of BMPs and shall keep all records related to BMP maintenance for a period of at least 5 years. The records shall include records of any BMP Facilities corrections, repairs, and replacements. The applicant shall make these records available to the County upon request.</p>	
<p>Impact HYD-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site.</p>	<p>See MM-HYD-1</p>	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
<p>Impact HYD-4: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.</p>	<p>See MM-HYD-1</p>	<p>Less than Significant</p>
<p>Impact HYD-5: The project could create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.</p>	<p>See MM-HYD-1</p>	<p>Less than Significant</p>
<i>Noise</i>		
<p>Impact NOI-4: The project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above noise levels existing without the project.</p>	<p>MM-NOI-1: In order to reduce impacts related to construction noise from the proposed project, prior to issuance of grading and building permits the following measures shall be incorporated by the County of Sonoma as conditions on permits, as deemed necessary:</p> <ul style="list-style-type: none"> • Hours of construction shall be limited to the hours of 7:00 a.m. to 6:00 p.m. on weekdays. • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. • Construction noise reduction methods, such as shutting off idling equipment, maximizing the distance between construction equipment staging areas, and using electric air compressors and similar power tools rather than diesel equipment, shall be used. • During construction, stationary construction equipment shall be placed such that noise is directed away from or shielded from sensitive noise receivers. • During construction, stockpiling and vehicle staging areas shall be located far from noise-sensitive receptors. • The developer shall designate a project manager with authority to implement the mitigation prior to issuance of a building/grading permit. The project manager's phone number shall be conspicuously posted at the construction 	<p>Less than Significant</p>

**Table ES-1
Summary of Potential Environmental Impacts**

Impact	Mitigation Measures	Level of Significance After Mitigation
	site. The project manager shall determine the cause of noise complaints (e.g. starting too early, faulty muffler, etc.) and take prompt action to correct the problem.	

ES.4 ANALYSIS OF ALTERNATIVES

ES.4.1 Alternatives Analyzed

Four alternatives to the proposed project, including the No Project Alternative, were analyzed in Chapter 5, Alternatives. The No Project Alternative is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines that examines the environmental effects that would occur if the project were not to proceed. The other alternatives are discussed as part of the “range of reasonable alternatives” selected by the County, and pursuant to a settlement agreement in Sonoma County Superior Court Case No. SCV-256338. The alternatives addressed in Chapter 5 are described below.

No Project Alternative

The No Project Alternative considers the effects of foregoing the project entirely and leaving the project site in its current condition. Under the No Project Alternative, no buildings or structures would be demolished, and no new buildings would be constructed on the project site. The project site would continue to operate in its existing capacity with the existing barn, residences, vineyards, fruit orchards, and vegetable crops remaining in their current locations. There would be no new production facility for wine and cheese making and no tasting room; nor would there be agricultural promotional events held on the site without proper permits.

This alternative would not meet any of the project objectives because it would limit operations to those currently occurring on the site. The No Project Alternative would not allow for the creation of an economically self-sufficient and viable business growing and selling wine and farmstead goods, would not allow for the operation of a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine each year, and would not provide onsite tasting and direct-to-consumer sales and events, because there would be no production facility for wine and farmstead goods on site and there would be no tasting room or retail sales on site. This alternative would limit opportunities for small-scale sustainable farmers and food artisans to operate on site since there would be no production facility or tasting

room for them to utilize. This alternative would also limit the ability to provide agricultural promotion events that promote wine and farmstead goods grown and produced on site since events would not be allowed without special permits.

No Tasting Room Alternative

The No Tasting Room Alternative would eliminate operation of the tasting room out of the proposed hospitality building, but would not eliminate hospitality use in the building entirely. Under this alternative, the hospitality building would be reduced in size to 1,517 square feet, and the remainder of the project site would be developed in the same way as the proposed project. The hospitality building would include a commercial kitchen for the processing of farmstead goods, a demonstration room for use during tasting events, restrooms, and support spaces. The two additional acres of crops and orchard would be added, and all other agricultural operations would be the same as the proposed project. The water demand and sanitary wastewater generation for the site would be incrementally reduced under this alternative since the hospitality building would be reduced in size and there would be no visitors associated with use of the tasting room. Without the tasting room on site, there would also be four fewer employees on site. The on-site well would provide water for processing, domestic, landscape/livestock, and emergency fire suppression uses, as proposed under the project. The eight agricultural promotional events proposed annually would occur under this alternative. The production facility would operate as proposed under the project, except no private tasting would be allowed, and the hospitality building would be used for processing farmstead goods. The farmstead products and wine produced on the site would not be available for tasting or for purchase on the site, except at promotional events. These products would need to be shipped off site for tasting and sales, which would increase the number of truck trips to and from the site.

Since the No Tasting Room Alternative would allow for the production of wine and farmstead products on the project site, objectives related to operating a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine per year and providing agricultural promotional events to promote wine and farmstead products would still be met. This alternative would not meet the objective of providing on-site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met but to a lesser degree than the proposed project: create an economically self-sufficient and viable business growing and selling wine and farmstead goods; create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; promote environmentally sustainable operations in all agriculture, production and events; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

Off-Site Tasting Room Alternative

The Off-site Tasting Room Alternative would allow for operation of a tasting room off site, most likely in a developed area such as the cities of Santa Rosa or Rohnert Park. The off-site tasting room would operate from 11:00 a.m. to 5:00 p.m. seven days per week, similar to the proposed project. The off-site tasting room would include a commercial kitchen, and all processing of farmstead goods would take place at this off-site location. Wine, cheese, and produce for farmstead products would be transported from the project site to the off-site location for processing, tasting, and sales. Development of the project site would involve demolition of the existing barn, farmworker housing, and non-conforming residences, and construction of the proposed agricultural employee housing and production facility. The hospitality building would not be constructed on site. The impacts of any construction related to the off-site tasting room, if any, are speculative, and would depend upon the site selected. Agricultural promotional events would be allowed on the site, but tastings and sales of products would be conducted at an off-site location. The production facility would operate as proposed under the project, except no private tasting would occur. The additional 2 acres of crops and orchards would be added, and the agricultural operations would be the same as the proposed project. The water supply requirements for the site would be slightly reduced without construction of the hospitality building and operation of the tasting room; however, operation of an off-site tasting room would require water, wastewater, and other utility infrastructure elsewhere.

This alternative would meet project objectives related to operating a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine per year, promoting environmentally sustainable operations in all agriculture, production and events, providing agricultural promotional events that promote the wine and farmstead products grown and produced on site and creating an economically self-sufficient and viable business growing and selling wine and farmstead goods. Locating the tasting room off site would not meet the objectives of providing on site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met, but to a lesser degree than the proposed project: create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

No Events Alternative

The No Events Alternative would eliminate on-site agricultural promotional events from the proposed project. This alternative would involve all of the same construction and operations as the proposed project besides the eight annual events. The No Events Alternative would still allow for the production of wine and farmstead products on the project site and operation of the

tasting room. This alternative would not meet the project objective to provide agricultural promotional events to promote wine and farmstead products. Since this alternative would allow for the on-site tasting room, the following objectives would be met, but to a lesser degree than the proposed project: create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

ES.4.2 Environmentally Superior Alternative

The No Project Alternative would result in the least environmental impacts and would be the environmentally superior alternative. However, Section 15126.6(e)(2) of the CEQA Guidelines states that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. In this case, the environmentally superior alternative is the No Tasting Room Alternative, since it would reduce impacts to aesthetics, air quality, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, and transportation and traffic, when compared to the proposed project. Although it should be noted that the proposed project would not result in any significant impacts after implementation of the required mitigation measures.

The No Tasting Room Alternative would meet most, but not all of the project objectives. This alternative would not meet the objective of providing on-site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met but to a lesser degree than the proposed project: create an economically self-sufficient and viable business growing and selling wine and farmstead goods; create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; promote environmentally sustainable operations in all agriculture, production, and events; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

ES.5 AREAS OF CONTROVERSY

Section 15123 (b)(2) of the CEQA Guidelines requires the Executive Summary of an EIR to disclose areas of controversy known to the lead agency that have been raised by the agencies and the public. The County circulated a Notice of Preparation (NOP) to solicit agency and public comments on the scope and environmental analysis to be included in the EIR. Copies of the NOP and the NOP comment letters received by the County are included in Appendix A to this EIR. The following issues were raised in the written responses to the NOP:

- Light pollution interference with dark sky views associated with increased lighting at the project site.

- Aesthetic changes to the project site and surrounding area associated with the proposed project, including views from neighboring properties.
- Land use compatibility of commercial and industrial activities with agricultural, rural, and residential uses.
- Compatibility of the proposed project with adopted/planned land use of the project site and surroundings, including the Bennett Valley Area Plan.
- Compatibility of agribusiness, including the increase in the on-site population associated with agricultural promotional events, with the project site's Williamson Act contract.
- Impacts of the proposed project on the agricultural productivity of the project site.
- Increased air pollution from increased traffic associated with the proposed project.
- Impacts to wildlife associated with habitat access, increased vehicle traffic, and increased noise.
- Impacts to unique geographic features.
- Seismic hazards associated with proximity to Rodgers Creek Fault.
- Landslide hazards associated with potential slope instability on site.
- Fire hazard concerns associated with increased human and vehicle presence in the project area.
- Impacts to local groundwater associated with the proposed project's well use and the increase in impervious surfaces on site.
- Potential contamination of hydrological resources associated with the proposed project.
- Availability of water on site and in the surrounding area for fire suppression.
- Increased noise associated with on-site operations.
- Increased traffic and noise on Sonoma Mountain Road and Pressley Road due to the proposed project, including proposed events.
- Safety concerns for motorists, bicyclists, and pedestrians due to increased traffic and roadway use on Sonoma Mountain Road.
- Cumulative impacts of the project, including impacts associated with the North Sonoma Mountain Regional Park and the Sonoma Mountain Zen Center.
- Discussion of alternatives for the proposed project, including alternative project locations and reduced operations.
- Growth inducement caused by the proposed project.

ES.6 ISSUES TO BE RESOLVED BY LEAD AGENCY

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved. With respect to the proposed project, the key issues to be resolved include decisions by the County, as lead agency, as to:

- Whether this environmental document adequately describes the environmental impacts of the proposed project.
- Whether the recommended mitigation measures should be modified and/or adopted.
- Whether there are other mitigation measures or alternatives that should be considered for the proposed project besides those identified in the Draft EIR.

CHAPTER 1 INTRODUCTION

1.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

This environmental impact report (EIR) assesses the potentially significant environmental effects of the proposed Belden Barns Farmstead and Winery project (proposed project). The California Environmental Quality Act (CEQA) requires that before a decision can be made to approve a project with potentially significant environmental effects, an EIR must be prepared that fully describes the environmental effects of the project. This EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. The information contained in the EIR is reviewed and considered by the governing agency prior to the ultimate decision to approve, disapprove, or modify the proposed project.

CEQA requires that the Lead Agency—in this case, the County of Sonoma (County)—shall neither approve nor implement a project as proposed unless the project’s significant environmental effects have been reduced to a less-than-significant level, essentially “eliminating, avoiding, or substantially lessening” the expected impact. If the Lead Agency approves the project despite residual significant adverse impacts that cannot be mitigated to less-than-significant levels, the agency must state the reasons for its action in writing. This “Statement of Overriding Considerations” must be included in the record of project approval.

An EIR is intended to implement the basic purposes of CEQA and provide decision makers and the public with the information required by the CEQA statutes and Guidelines to fulfill these objectives. According to Section 15002(a) of the CEQA Guidelines, the purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities;
2. Identify the ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

1.2 ENVIRONMENTAL REVIEW PROCESS

1.2.1 Notice of Preparation and Responses

On September 10, 2015, the County sent a Notice of Preparation (NOP) to governmental agencies and organizations and persons interested in the project. The NOP is included as Appendix A. The NOP requested those agencies with regulatory authority over any aspect of the project to describe that authority and to identify the relevant environmental issues that should be addressed in the EIR. The 30-day public review period for the NOP began on September 10, 2015, and ended on October 9, 2015. The NOP was mailed and emailed to various federal, state, and local agencies, environmental groups, organizations, and other interested individuals and groups.

A public scoping meeting was held by the County on Tuesday, September 29, 2015. The purpose of this meeting was to provide the public and governmental agencies with information on the proposed project and the CEQA process and to give attendees an opportunity to identify environmental issues that should be considered in the EIR. Attendees were invited to mail or email their comment letters to the County during the 30-day NOP public review period by no later than 5:00 p.m. on October 9, 2015.

A total of 23 letters and emails were received from 22 individuals during the NOP public review period. Copies of the NOP and the NOP comment letters received by the County are included in Appendix A to this EIR. The following is a list of those respondents who submitted written comments in response to the NOP within the 30-day comment period:

- Tamara Boulton
- Hilary Burton
- Kirsten and Edwin Cutler
- Yvette Fallandy
- Stan Feingold
- Michael Guest and Alexander Nevarez
- Anthony Haas
- Harry (Hal) Koch
- Byron LaGoy and Amy Rodney
- Scott McIntosh
- Jane Nielson
- Donna Parker
- Toby Rosenblatt
- Deborah Shein
- Catherine Sowell
- Marlene Stein
- Martin Stein
- Dixie van der Kamp
- Shay and Terry Weisbrich
- Rose Zoia
- Caltrans
- Department of Conservation, Division of Land Resource Protection
- Sonoma County Department of Health Services
- State Water Resources Control Board

Comments received in response to the NOP were used to determine the scope of this Draft EIR. The following issues were raised in the written responses to the NOP:

- Light pollution interference with dark sky views associated with increased lighting at the project site.
- Aesthetic changes to the project site and surrounding area associated with the proposed project, including views from neighboring properties.
- Land use compatibility of commercial and industrial activities with agricultural, rural, and residential uses.
- Compatibility of the proposed project with adopted/planned land use of the project site and surroundings, including the Bennett Valley Area Plan.
- Compatibility of agribusiness, including the increase in the on-site population associated with agricultural promotional events, with the project site's Williamson Act contract.
- Impacts of the proposed project on the agricultural productivity of the project site.
- Increased air pollution from increased traffic associated with the proposed project.
- Impacts to wildlife associated with habitat access, increased vehicle traffic, and increased noise.
- Impacts to unique geographic features.
- Seismic hazards associated with proximity to Rodgers Creek Fault.
- Landslide hazards associated with potential slope instability on site.
- Fire hazard concerns associated with increased human and vehicle presence in the project area.
- Impacts to local groundwater associated with the proposed project's well use and the increase in impervious surfaces on site.
- Potential contamination of hydrological resources associated with the proposed project.
- Availability of water on site and in the surrounding area for fire suppression.
- Increased noise associated with on-site operations.
- Increased traffic and noise on Sonoma Mountain Road and Pressley Road due to the proposed project, including proposed events.
- Safety concerns for motorists, bicyclists, and pedestrians due to increased traffic and roadway use on Sonoma Mountain Road.
- Cumulative impacts of the project, including impacts associated with the North Sonoma Mountain Regional Park and the Sonoma Mountain Zen Center.

- Discussion of alternatives for the proposed project, including alternative project locations and reduced operations.
- Growth inducement caused by the proposed project.

1.2.2 Public Review of the Draft EIR

The Draft EIR is subject to a minimum 45-day public review period by responsible agencies and interested parties. In accordance with Section 15087 of the CEQA Guidelines, the County would publish a notice of availability of the Draft EIR at the same time it sends out a notice of completion to the California Office of Planning and Research. Agency and public comments on the adequacy of the Draft EIR and the lead agency’s compliance with CEQA may be submitted to the County as Lead Agency, in writing, prior to the end of the public review period, or given at a public hearing on the Draft EIR.

1.2.3 Final EIR

Following the close of the public review and comment period, written responses will be prepared that address all substantive comments on the Draft EIR. The Final EIR will consist of the Draft EIR, the comments received during the public review period, responses to the comments, and any revisions to the Draft EIR as a result of public agency and public comments. The Final EIR must be certified by the County before it can be used as the basis for decision-making.

1.3 INTENDED USES OF THE EIR

This EIR has been prepared by the County of Sonoma as Lead Agency in accordance with CEQA and applicable federal and state environmental regulations, policies, and laws. This EIR provides the CEQA compliance documentation upon which the County’s consideration of, and action on, all applicable land use permits and other approvals (collectively, “approvals”) shall be based. These include without limitation all those approvals set forth in this EIR, as well as any additional approvals necessary or useful to such planning, construction, operation, and maintenance (e.g., any use permits, grading permits, and other development-related approvals).

1.4 SCOPE OF THE EIR

This EIR has been prepared in compliance with CEQA (California Public Resources Code Section 21000 et seq.) and the procedures for implementation of CEQA set forth in the CEQA Guidelines (14 CCR 15000 et seq.).

According to CEQA Guidelines Section 15161, an EIR should focus primarily on the changes in the environment that would result from developing the proposed project. This EIR evaluates the potential environmental impacts that may occur from construction and operation of the proposed

project, including direct, indirect, cumulative, and growth-inducing impacts. The general areas of environmental impact to be addressed in this EIR are based on the Initial Study (IS)/Mitigated Negative Declaration (MND) that was adopted for the project in 2014 (see Project Background, Section 2.4 and Appendix B), and the issues identified as requiring additional analysis beyond what was provided in the IS/MND as identified in the NOP/Scoping process (Appendix A). Chapter 3 of this EIR includes a summary of impacts found to be less than significant in the IS/MND, as well as a separate section for each of the following issue areas:

- Aesthetics
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Noise
- Transportation and Traffic

1.5 DOCUMENT ORGANIZATION

This EIR is organized to provide a comprehensive analysis of the significant potential environmental impacts, mitigation measures, and alternatives for the proposed project as follows:

- **Executive Summary.** Summarizes the proposed project, environmental impacts that would result from implementation of the proposed project, recommended mitigation measures that would avoid or reduce impacts, and the level of significance of impacts both before and after mitigation.
- **Chapter 1, Introduction.** Provides an introduction and overview describing the purpose and intended use of the EIR, the EIR's compliance with CEQA, and the scope and organizational format of the EIR.
- **Chapter 2, Project Description.** Provides a detailed description of the proposed project, including its geographical setting, major objectives, components, and construction. This section also provides background on the proposed project. The environmental setting is also included in this chapter and provides a description of the physical environmental conditions in the vicinity of the proposed project, as they existed at the time the NOP was published, which constitute the baseline physical conditions by which the significance of potential impacts would be assessed. This section also includes a list of discretionary

actions that would be required by the Lead Agency and responsible agencies for the proposed project.

- **Chapter 3, Environmental Analysis.** Provides an analysis of the environmental impacts and mitigation measures for the proposed project. An analysis of potential cumulative impacts is provided in each topical section.
- **Chapter 4, Other CEQA Considerations.** Provides discussions required by Sections 15126 and 15128 of the CEQA Guidelines, including effects found not to be significant during the EIR process, growth-inducing impacts of the proposed project, significant environmental effects that cannot be avoided if the proposed project is implemented, and significant irreversible environmental changes that would result from implementation of the proposed project.
- **Chapter 5, Alternatives.** Describes alternatives to the proposed project that would avoid or substantially lessen significant effects and evaluates their environmental effects in comparison to the proposed project.
- **Chapter 6, List of Preparers.** Provides a list of the EIR preparers.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

The proposed Belden Barns Farmstead and Winery project (proposed project) involves winemaking, farmstead food production, and farmstead product and wine tasting on a 55-acre parcel located at 5561 Sonoma Mountain Road in Sonoma County (County). The farmstead products would include fresh/preserved vegetables/fruits, eggs, charcuterie and cheeses. The proposed project would include three primary uses with supporting uses and structures: (1) production facility (creamery and winery building), (2) farmstead and wine tasting room (hospitality building), and (3) agricultural promotional events.

2.2 PROJECT OBJECTIVES

Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines requires that the project description of an environmental impact report (EIR) contain a statement of objectives for the proposed project. The project objectives include the following:

1. Create an economically self-sufficient and viable business growing and selling wine and farmstead goods.
2. Construct and operate a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine each year, using primarily agricultural products grown on site.
3. For the purpose of on-site marketing, create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming and to the farmers, winemakers, and cheesemakers.
4. Provide on-site tasting and direct-to-consumer sales of farmstead products and wine, by appointment only.
5. Promote environmentally sustainable operations in all agriculture, production, and events.
6. Provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.
7. Provide agricultural promotional events that promote wine and farmstead products grown and produced on site.

2.3 PROJECT SITE AND SURROUNDINGS

2.3.1 Location and Setting

The 55-acre project site is located at 5561 Sonoma Mountain Road in southeastern Sonoma County [Assessor's Parcel Number (APN) 049-030-010] approximately 5.5 miles west of Glen Ellen and 7 miles east of the City of Rohnert Park (see Figures 2-1 and 2-2). Figure 2-3 provides an aerial view of the site, including the existing structures and other features of the property.

The site is currently developed with an agricultural complex which was fairly typical of the early twentieth century. There are three dwellings, a barn, and accessory structures including a guest house and agricultural building (Dance Hall). One of the dwellings replaced a previous dwelling and is used as the owner's primary residence. The remaining buildings have been maintained over the years and some modifications have occurred. The site is currently planted with approximately 22 acres of wine grapes, and also includes approximately 6 acres of pasture, fruit orchard, and a vegetable plot. Current vineyard operations require 12 employees to commute to and from the project site each day for the 8–10 week harvest season (August through October). There is an agricultural reservoir on site in the pasture area that provides irrigation water for the existing crops on the site. There is an ephemeral drainage (unnamed drainage) in the northeastern portion of the property which drains into Matanzas Creek. South Fork Matanzas Creek crosses the southwest corner of the property.

The project site has a General Plan designation of Land Intensive Agriculture 40-acre density. The zoning designation is LIA (Land Intensive Agriculture) with a SR (Scenic Resources) combining zone and Riparian Corridor (RC 50/50) combining zone along South Fork Matanzas Creek.¹ The LIA district allows a range of agricultural processing and promotional activities. The density and minimum parcel size have been established at 40 acres per dwelling unit and a 40-acre minimum parcel size. Crop production and harvesting are allowed in this district by right, whereas agricultural processing and promotional activities, tasting rooms, and agricultural promotional events are allowed with a use permit.

The project site is also located within the boundary of the Bennett Valley Area Plan, which is consistent with the County General Plan. The Bennett Valley Area Plan recognizes that agriculture is the primary use in the LIA district and that residential uses are permitted to support agricultural operations. The proposed project includes a farmstead with agricultural processing facilities and tasting room, for products produced primarily on site, and agricultural employee housing.

¹ Numbers following RC designation (50/50) indicate streamside conservation area for development/ agricultural cultivation setback. The unnamed drainage located in the northeast portion of the site does not include RC zoning.

2.3.2 Surrounding Uses

The project site is located in the hills to the southeast of Santa Rosa at the base of Sonoma Mountain. The project area is a large lot, rural area with mixed pasture land and vineyards. The properties to the east and south, approximately 226-acre and 169-acre parcels, respectively, are owned by the County and are part of the North Sonoma Mountain Regional Park and Open Space Preserve. The properties immediately to the north and west of the project site, across Sonoma Mountain Road, are developed with agricultural uses, while all other surrounding properties are developed with low-density rural residential uses. The properties in the surrounding area are designated Diverse Agriculture, Resources and Rural Development, Rural Residential, and Land Intensive Agriculture in the General Plan with densities ranging from 15 acres to 40 acres per dwelling unit.

2.4 PROJECT BACKGROUND

An earlier version of the proposed project was previously evaluated in an Initial Study and Mitigated Negative Declaration (MND) in 2013 (see Appendix B of this EIR). On March 13, 2014, the Sonoma County Board of Zoning Adjustments adopted the MND and approved an initial version of the project (Initial Project). On March 24, 2014, a timely appeal was filed of the Board of Zoning Adjustment's approval of the Initial Project. The Board of Supervisors held a public hearing on the appeal on September 9, 2014. The appeal was denied, the MND was adopted, and a modified version of the Initial Project (Approved Project) was approved subject to conditions of approval. On October 14, 2014, the Board of Supervisors adopted Resolution No. 14-0416 to adopt the MND and approve a conditional use permit for the Approved Project. Subsequently, on November 13, 2014, Friends of Sonoma Mountain Road filed a lawsuit challenging the Approved Project, *Friends of Sonoma Mountain Road v. County of Sonoma, et al.*, Sonoma County Superior Court No. SCV 256338. The Superior Court dismissed the lawsuit on July 24, 2015, pursuant to a Settlement Agreement, dated June 17, 2015. Among other terms, the Settlement Agreement requires the County to prepare an EIR for the post-settlement project (revised project, herein referred to as the proposed project), and requires the EIR to include a project alternative without a tasting room.

As recognized by the Settlement Agreement, a proposed expansion of the existing owner's residence will occur with or without the winery and is not part of the project. The Settlement Agreement allows the project applicant to "apply for permits, construct, and occupy a single-family residence at any time." The single-family residence will be an expansion of the existing owner's residence and will not be attached to any of the project facilities. While the expansion of the existing residence is not part of the project, it is included as a cumulative project and is therefore analyzed in the cumulative impact analysis throughout this EIR.

2.5 PROJECT CHARACTERISTICS

2.5.1 Proposed Operations and Features

The proposed project would include a new cheese making, winemaking, farmstead food production facility, and tasting room on the 55-acre project site. A description of the proposed uses of the site is provided below.

Primary Uses

Production Facility. The proposed production facility (creamery and winery building) shown on Figures 2-4 and 2-5, would consist of a new creamery and winery facility capable of producing 10,000 pounds of cheese and 10,000 cases of wine per year. The regular production hours would be 7:00 a.m. to 6:00 p.m., Monday through Friday. Wine production harvest hours would be 6:00 a.m. to 10:00 p.m., seven days per week, during the harvest season, which is typically late August through mid-October. Fruit for the wine would come predominately from the project site with approximately 50 tons of fruit coming from the surrounding area. Approximately 30%–35% of the milk for the creamery would come from on-site livestock and the remaining 65%–70% would come from other dairies in the surrounding area. Milk deliveries to the site would be made biweekly by truck. Farmstead products would be sold on site and shipped from the site to wholesalers or retailers weekly by truck.

The production facility would be a new approximately 10,941-square-foot (sf), two-story building. The first floor would be approximately 8,796 sf and would be used for barrel storage, fermentation, winery production, the cheese creamery, and support spaces. The second floor would be approximately 2,145 sf and would include space for administration, lab, and private tasting facilities. The production facility would replace the existing barn located in the southeast portion of the farm building complex. The ridge line of the proposed production facility would be approximately 6 feet lower than the ridge line of the existing barn that that it would replace. Refer to Figures 2-6A and 2-6B for elevations of the proposed production facility.

Tasting Room. The proposed tasting and farmstead goods processing building (hospitality building) would be a one story 3,033 sf structure, as shown on Figures 2-4 and 2-5. The building would include a by-appointment-only tasting room, tasting areas, tax paid case goods storage, farmstead product processing, a commercial kitchen, restrooms, and support space for the direct sales of wine, cheese, farmstead products, and incidental items from the local area. The proposed tasting room hours would be 11:00 a.m. to 5:00 p.m., seven days per week. The tasting room would be the primary hospitality space for all products produced on site. Refer to Figures 2-7A through 2-7C for elevations of the proposed tasting room.

Agricultural Promotional Events. The proposed project would include eight agricultural promotional events per year with varying participant levels as set forth in Table 2-1 below. The agricultural promotional events would feature food, wine, and other products produced on the site or in the local area and would be held in indoor and outdoor portions of the farm building complex area. Events would end by 9:30 p.m. with cleanup being completed by 10:00 p.m. There would be no outdoor amplified music at any event. Event parking would be provided on site as shown in Figures 2-4 and 2-5, with parking guides present to facilitate parking when event participants arrive. The proposed project would include a sanitary wastewater management system, designed to handle flows from the largest agricultural promotional event of up to 200 people; however, portable toilets would also be used during events.

**Table 2-1
Proposed Belden Barns Agricultural Promotional Events**

Event	Time Period	Maximum Participants
Spring Wine and Farm Event	March – May	150
Summer Wine and Farm Event	June – August	150
Fall Wine and Farm Event	September – October	200
Winter Wine and Farm Event	November – February	150
Wine and Farm Event or Wedding	June – October	125
Wine Club Members' Pick Up Event	Anytime	100
Wine Club Members-Only Event	Anytime	60
Tasting and Dinner for Distributors	Anytime	60

Supporting Uses and Structures

Agricultural Employee Housing. A new approximately 1,877 sf agricultural employee housing unit, shown on Figures 2-4 and 2-5, would be constructed to replace an existing legal nonconforming 1,780 sf building currently being used for agricultural employee housing, which would be demolished. Refer to Figures 2-8A and 2-8B for elevations of the proposed agricultural employee housing.

Landscaping. The project would include new and enhanced landscaping around the proposed tasting room, agricultural employee housing unit, and the existing residence, as shown on Figure 2-9. The landscaping would include very low water use trees such as coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*), and oracle oak (*Quercus xmoreha*)², along the driveway, parking areas, and each building. The agricultural employee unit would be surrounded by landscape areas with trees, shrubs, and groundcover. Similar landscaping would be provided between the existing

² Consistent with the County's Water Efficient Landscape Ordinance.

residence and the proposed tasting room. The tasting room would be surrounded by permeable decomposed granite areas on the south and east, and would have a small lawn area, totaling approximately 1,646 square feet, to the west. There would also be a small section of no-mow meadow grass on a terrace to the east of the tasting room building. The proposed landscaping would emphasize low water use plants as shown on Figure 2-9, consistent with the County's Water Efficient Landscape Ordinance.

Employees. The project would include five full-time and four part-time employees for most of the year. Seven additional full-time employees would be on site during the grape harvest season and bottling (late August through mid-October).

Other Uses

Crop Production (excluding grapes). The project would expand the existing vegetable garden from 1 to 2 acres and the fruit orchard from 1 to 2 acres, as shown on Figure 2-10.

Livestock and Grazing. The proposed project would include up to two milk cows, five milk sheep, chickens, and four pigs. The animals would be housed and grazed on approximately 6 acres, as shown on Figure 2-10. A 24 by 40-foot milking barn is proposed for the livestock in the southern portion of the site, as shown on Figures 2-4 and 2-10. The milking barn would be used for milking and feeding livestock and would be accessed via an existing vineyard road.

2.5.2 Access and Parking

The project site would continue to be accessed via the private driveway off of Sonoma Mountain Road. The project would include minor improvements to the existing entrance on Sonoma Mountain Road and driveway, as well as clearing or trimming of vegetation approximately 400 feet east of the entrance within County right-of-way on the north side of Sonoma Mountain Road, and 200 feet west of the driveway on the south side of Sonoma Mountain Road to increase sight distance for cars traveling on Sonoma Mountain Road.

The project applicant would advise all guests to access the site from the south or west (Santa Rosa or Rohnert Park) and would specifically ask guests not to travel from Glen Ellen via the eastern portion of Sonoma Mountain Road.

All parking for day-to-day activities and promotional events would be provided on site, as shown on Figures 2-4 and 2-5. A total of 16 parking spaces, including one accessible space, would be provided in front of the tasting room building and adjacent to the agricultural employee housing unit. Eighty unpaved event parking spaces would be provided along the vineyard roads.

2.5.3 Infrastructure and Utility Improvements

Water Supply and Distribution

The existing on-site well would supply water for all proposed project structures. The well has the ability to provide irrigation water for the gardens and orchard, however, water for vineyard irrigation would continue to be drawn from the existing irrigation pond supplied by surface runoff.

Separate water storage and distribution systems would be provided for the project's domestic water, landscape/livestock water, and emergency fire suppression water. Each system would be supplied by the well. The domestic water system would include a 10,000-gallon water storage tank that would be filled with groundwater from the existing well. The landscape/livestock system would also include a 10,000-gallon storage tank that would be filled with groundwater from the existing well. The fire protection storage system would consist of four 10,000 gallon storage tanks that would retain water to be accessed by fire crews in the event of a fire emergency. All six storage tanks would be located on the east side of the production facility, approximately 10 feet west of the property line and screened from view by the proposed production facility building and adjacent trees and vegetation. The tanks would be placed on 12-foot in diameter concrete slabs.

The existing well would supply water to the storage tanks (when called for) at a rate that would not exceed 20 gallons per minute (gpm). The controls would be set to allow one tank to be filled at a time. Each system would have an independent pumping system from the respective storage tank to the source.

The average flow from the storage tank to the production facility during operations would be 15 gpm, with a peak of 40 gpm. The average and peak flow from the storage tank to the landscape/livestock would be approximately 25 gpm, if occurring simultaneously. The projected maximum water demand for the project would be 1.77 acre-feet per year.

Wastewater Treatment

The sanitary wastewater (SW) would consist of wastewater from the laboratory, tasting room, and restroom facilities. The process wastewater (PW) would consist of wastewater generated during production of the 10,000 cases of wine and 10,000 pounds of cheese. The proposed combined PW and SW wastewater management system, shown in Figure 2-11, would consist of a filled land system.

The filled land system would include a designated SW 200 percent expansion/reserve area. The reserve PW disposal system would include a rotary screen for solids filtration, septic/settling tanks, aeration, a separate commercial grade aerated textile pre-treatment unit, an aboveground storage tank, and ultimate disposal via drip irrigation to the existing vineyard on site.

PW would be pretreated through filters and settling/septic tanks and then disposed of in the filled-land standard leachfield system. After a combination of anaerobic and aerobic treatment in the leach lines and adjacent trench soil, the treated wastewater would percolate through the soil for final polishing. Ultimately, the treated effluent would migrate into the groundwater minus the volume consumed via evapotranspiration.

The reserve PW system would be an AdvanTex treatment system with drip irrigation of reclaimed wastewater on designated blocks of the vineyard.

The proposed wastewater management systems would be adequate to treat and dispose of all projected SW and PW flows generated from the proposed project.

Drainage

Surface runoff from the proposed development area would continue to sheet flow toward Sonoma Mountain Road and the ephemeral drainage north of the property which joins the South Fork of Matanzas Creek. The project includes Low Impact Development techniques, including roof drainage that would be collected in gutters and conveyed via downspouts and storm drain piping to infiltration trenches to facilitate infiltration into the soils. The stormwater system would be designed to have no increase between the pre-development and post-development flows. Low Impact Development features include bioretention in roadside and vegetated swales, infiltration trenches, interceptor trees, and pervious pavement. Drainage features include drainage swales, culverts where drainages cross roadways, and drainage control features at the inlet and outlets of culverts (Figure 2-12).

Utilities and Equipment

The proposed project would also include installation of fire protection hydrants, electrical and telecom, and water and gas piping. All utilities would be placed underground and would be located within existing or proposed roadway and parking areas.

The project would also include on-site outdoor mechanical equipment. The production facility would include an air-cooled refrigeration unit, variable refrigerate volume conditioning unit, and water pumps. This equipment would be located on the east side of the production facility and would be surrounded by a 5-foot-high wall.

2.5.4 Construction

Construction of the proposed project is anticipated to occur over 12–18 months. The first stages of construction would involve demolition of existing structures and grading of approximately 2.8 acres of the site. Demolition is expected to occur over a 3-week period. The

following existing structures would be demolished as part of the construction of the project: 2,285 sf barn, 2,490 sf legal nonconforming residence, and 1,780 sf legal nonconforming farmworker housing with garage.

The final site grading, shown in Figure 2-12, would include erosion prevention/sediment control features and use best management practices to prevent erosion and sediment to travel from disturbed areas on the site. The proposed earth work would balance on site and would not require import or export of soil. During the approximately 6-month site grading period, there would be approximately 40 truck deliveries total and an average of 5 worker vehicles per day.

Standard construction methods would be employed for all proposed building construction. During the 12–18 month construction phase there would be a total of approximately 50 concrete trucks and 30 materials delivery trucks. An average of 10–12 workers would be on site daily working 8–10 hours per day. There would be no construction on weekends or holidays.

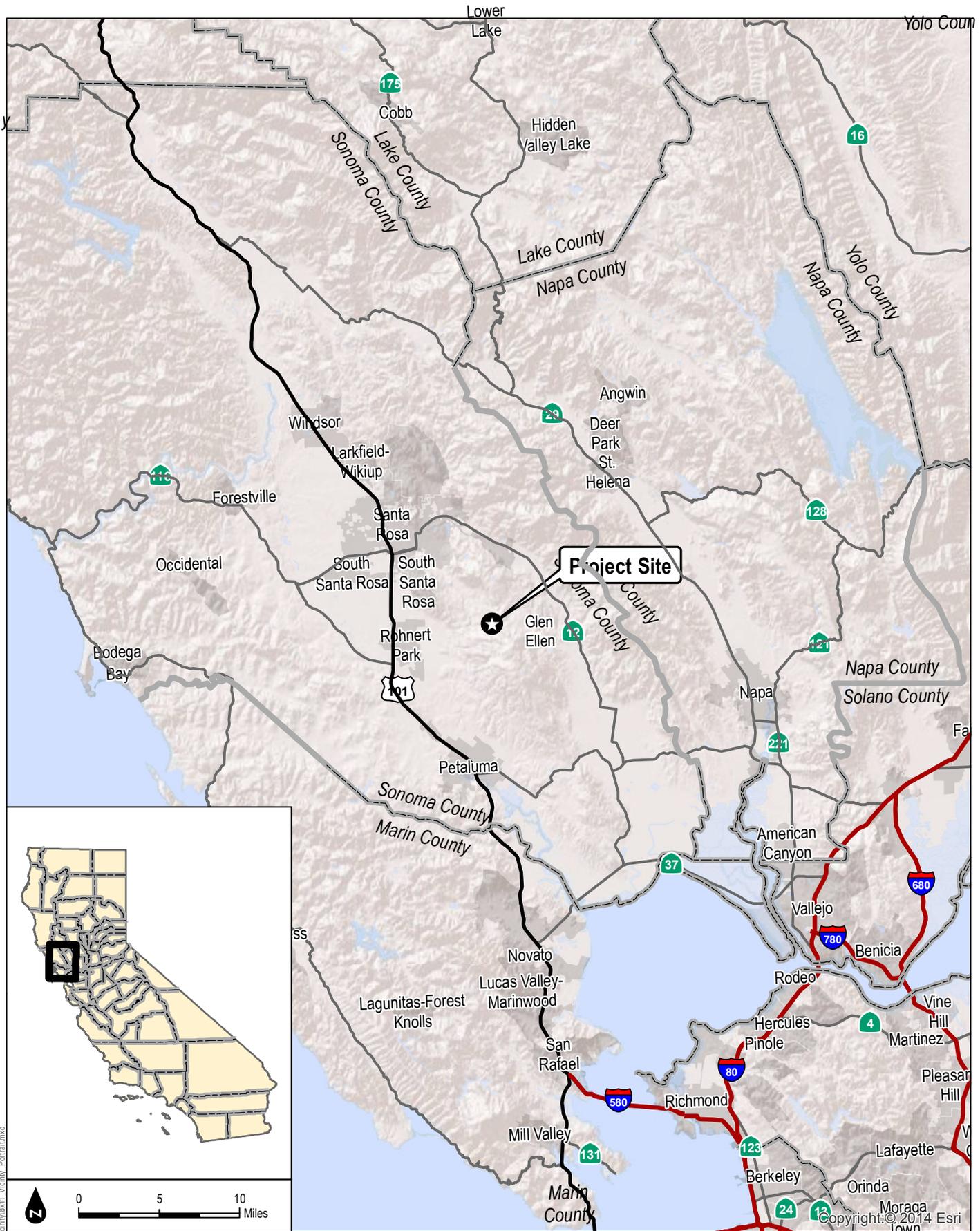
2.6 PERMIT REQUIREMENTS

This EIR is intended to provide the information and environmental analysis necessary to assist public agency decision makers in considering all of the approvals necessary for the planning, development, construction, operation, and maintenance of the proposed project.

The County of Sonoma serves as Lead Agency for the proposed project under CEQA. As Lead Agency, the County is responsible for reviewing and certifying the adequacy of this EIR. The County will use the EIR in its decision-making for considering whether to approve the proposed project. Approvals that would be required from Sonoma County include a use permit for the winery and farmstead operations, grading and building permits for the proposed construction, encroachment permits for vegetation removal within County right-of-way, and food facility permits.

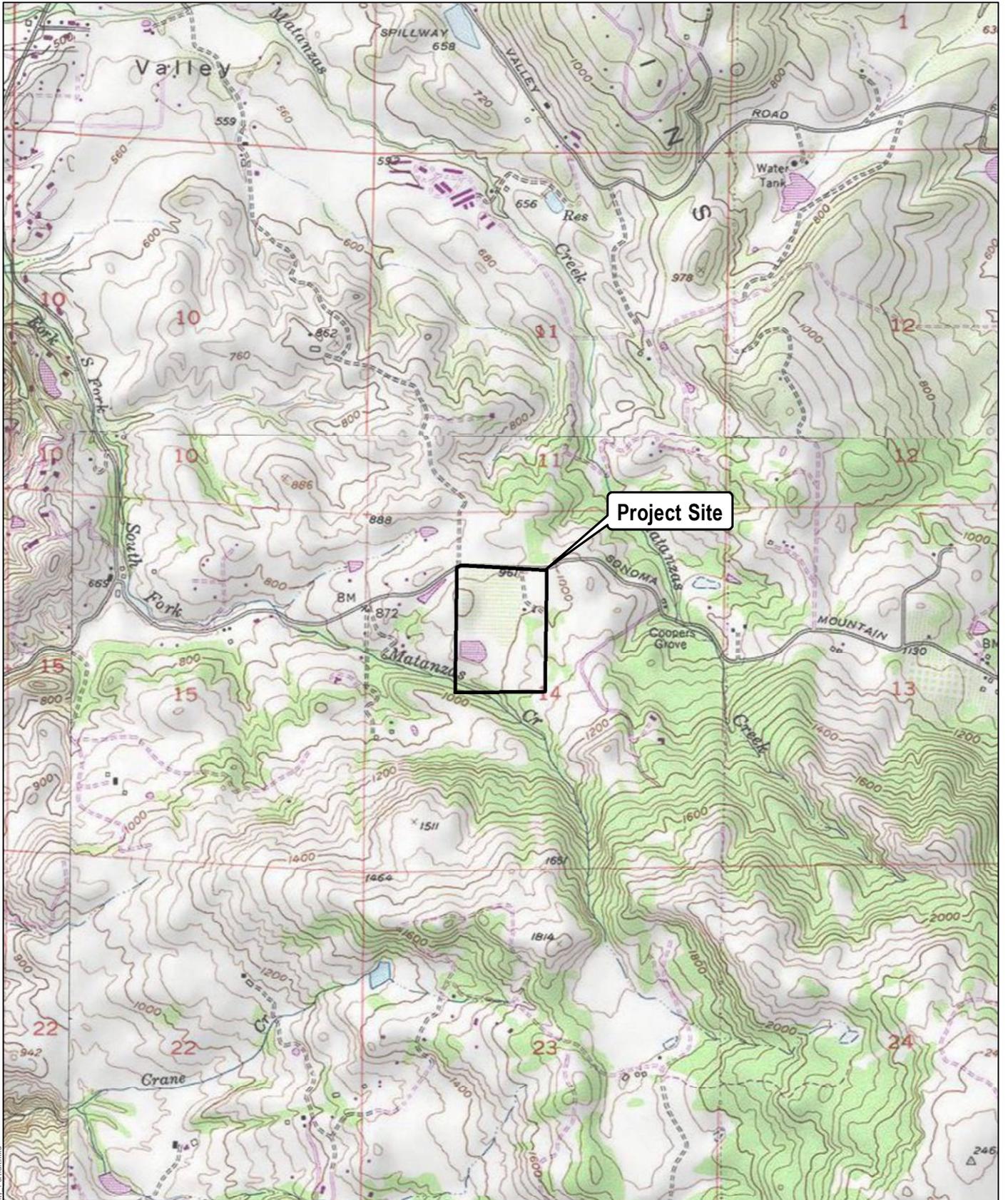
Additional approvals may be required from the Bay Area Air Quality Management District, California Department of Fish and Wildlife, Sonoma County Agricultural Commissioner, State Department of Conservation, State Department of Public Health, the State Water Resources Control Board, the North Coast Regional Water Quality Control Board, and the U.S. Fish and Wildlife Service.

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**FIGURE 2-1
Regional Map**

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Copyright © 2013 National Geographic Society, i-cubed

SOURCE: USGS 7.5-Minute Series Glen Ellen Quadrangle.

FIGURE 2-2
Vicinity Map



Belden Barns Farmstead & Winery Draft EIR

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Sonoma Mountain Road

8

7

1

2

3

4

6

 Project Boundary

1 - Main residence and guest house

2 - Residence

3 - Agriculture housing

4 - Dance Hall/Barn

5 - Barn

6 - Shed

7 - Shed

8 - Irrigation Pond



0 50 100 Feet

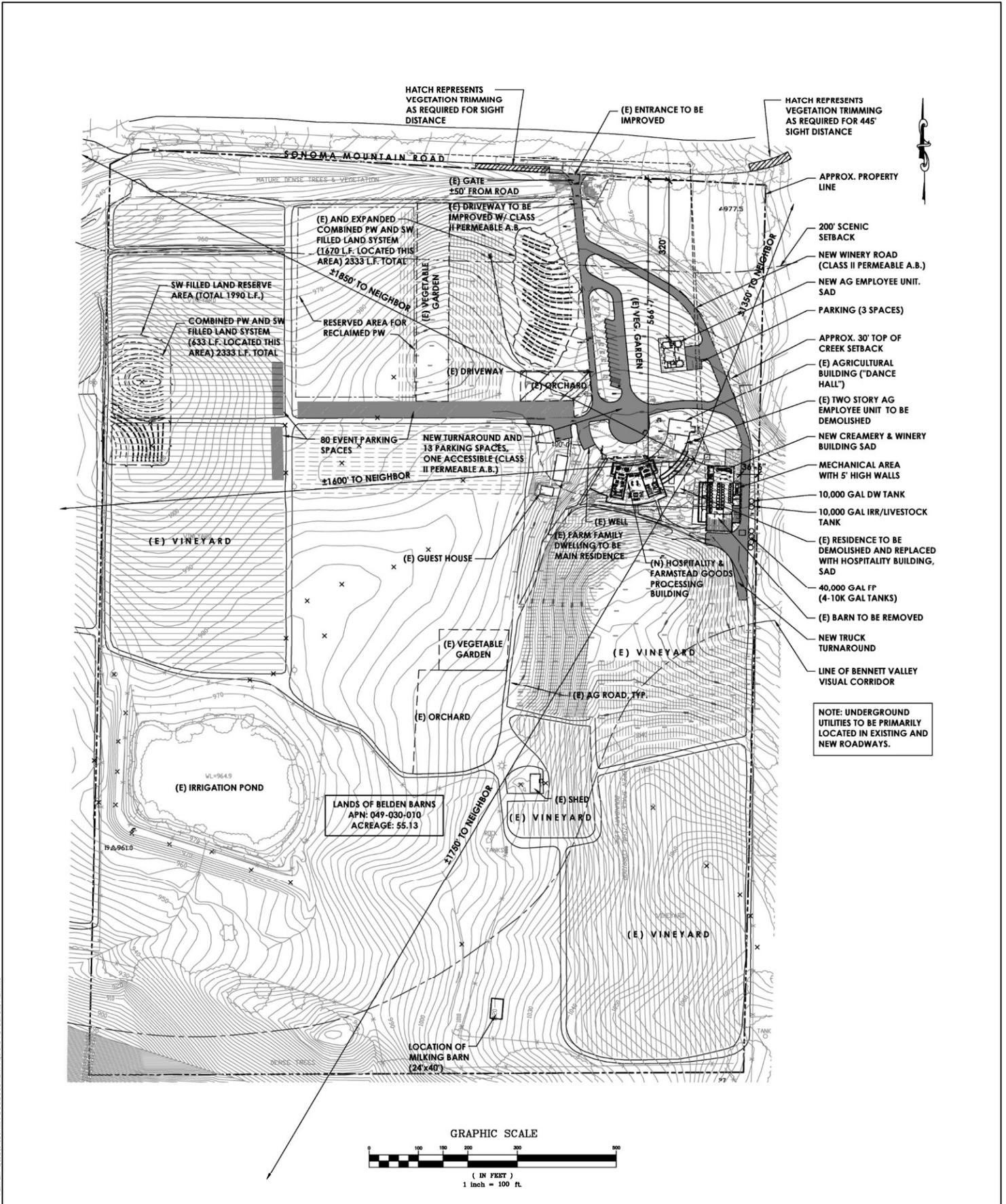
SOURCE: Bing Maps, 2015

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Belden Barns Farmstead & Winery Draft EIR

FIGURE 2-3
Aerial View of Project Site

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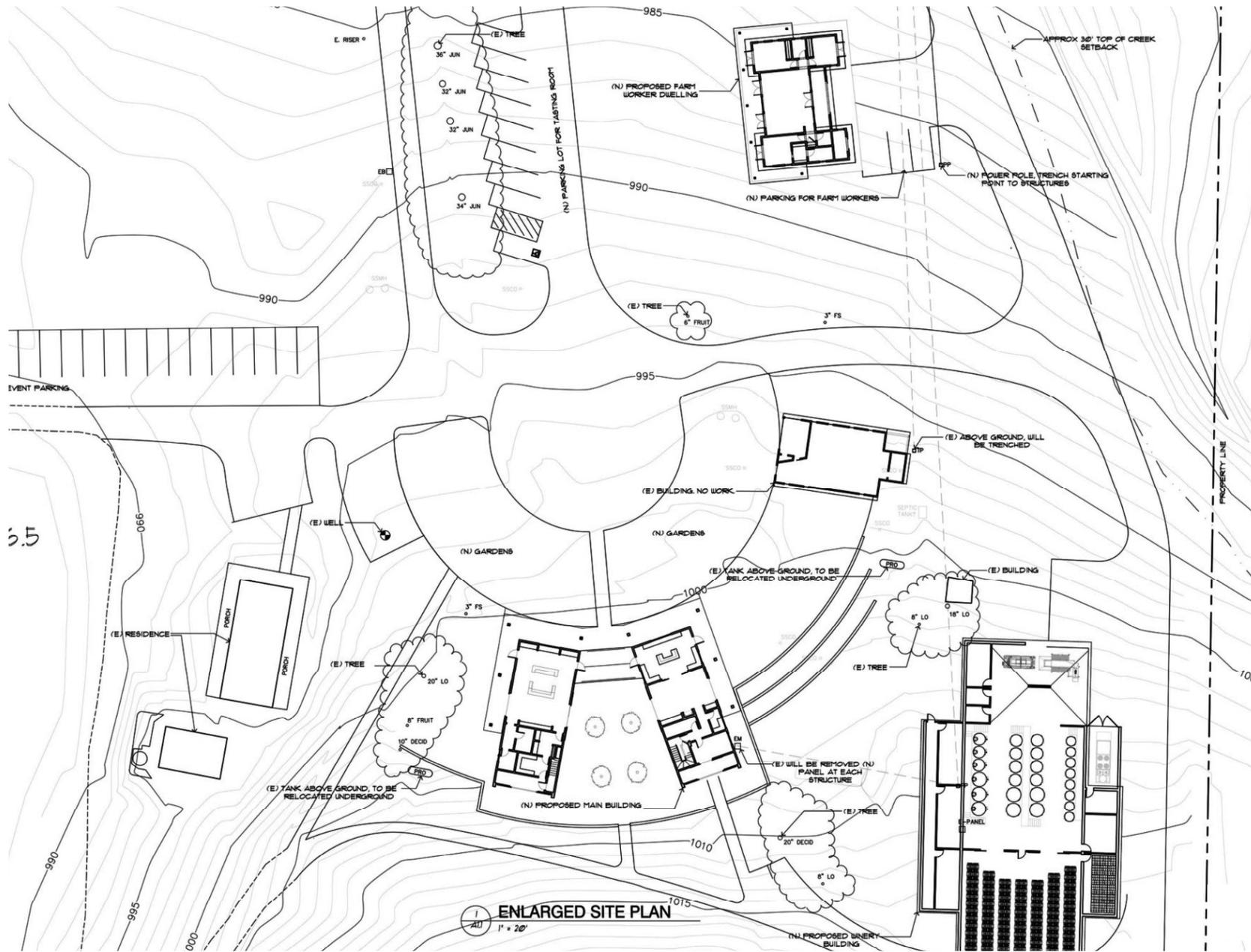
SOURCE: Wade Design Architects

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Belden Barns Farmstead & Winery Draft EIR

FIGURE 2-4
Overall Site Plan

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SOURCE: Wade Design Architects, Inc., 2015

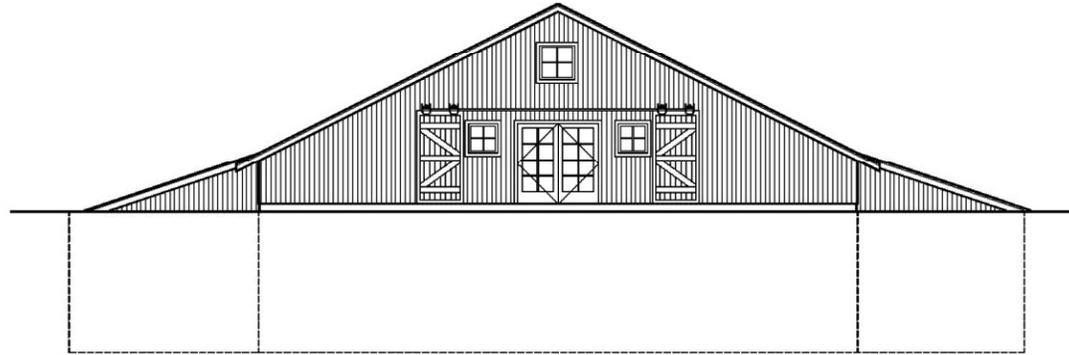
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Belden Barns Farmstead & Winery Draft EIR

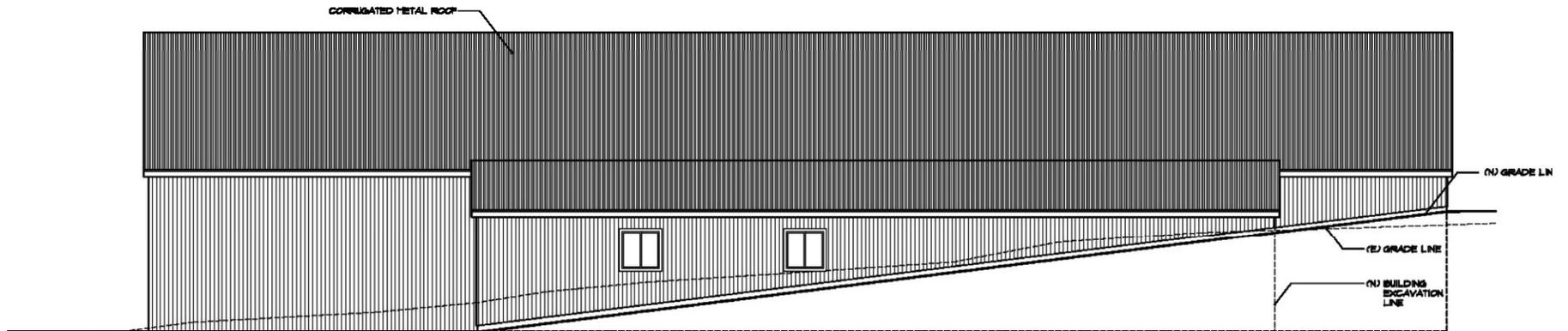
FIGURE 2-5
 Enlarged Site Plan

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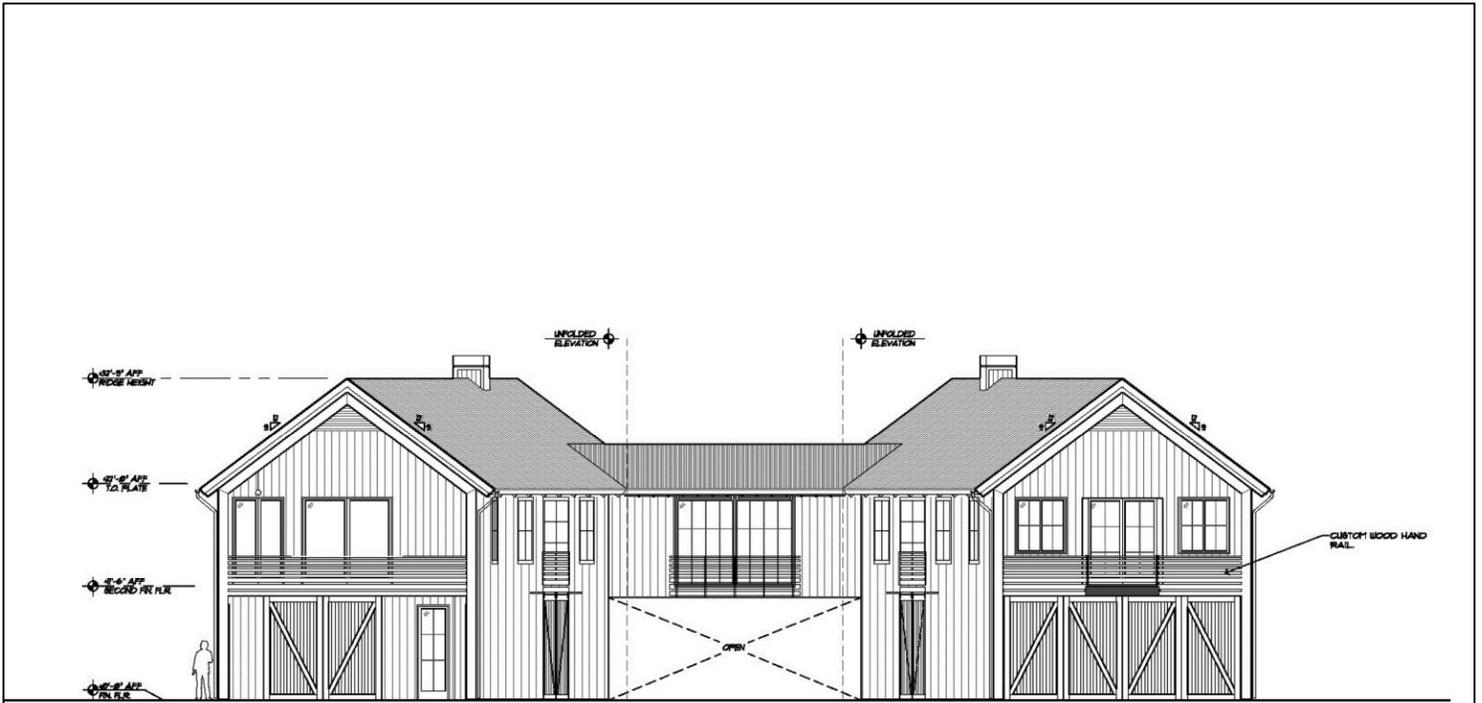


1
ASB WINERY - NORTH ELEVATION

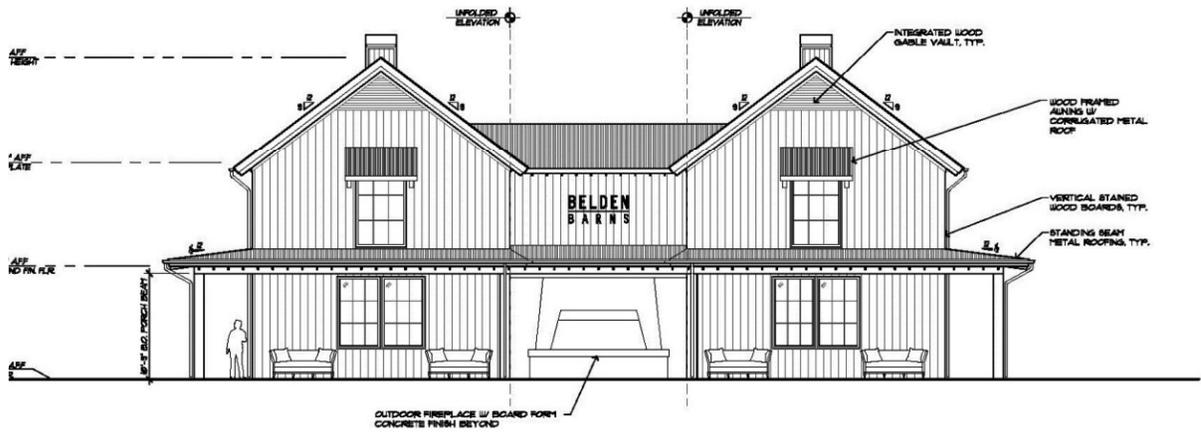


2
ASB WINERY - EAST ELEVATION

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1
A11 HOSPITALITY BUILDING - NORTH ELEVATION



1
A12 HOSPITALITY BUILDING - SOUTH ELEVATION (FRONT)

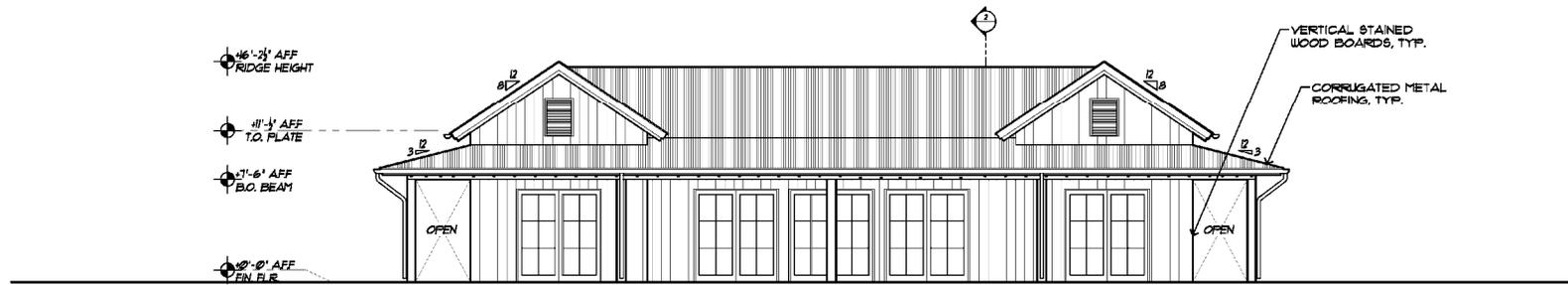
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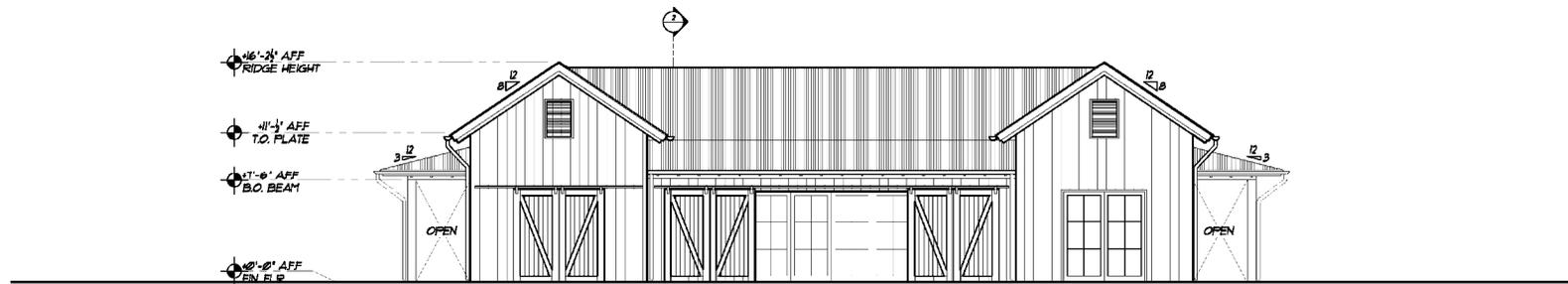
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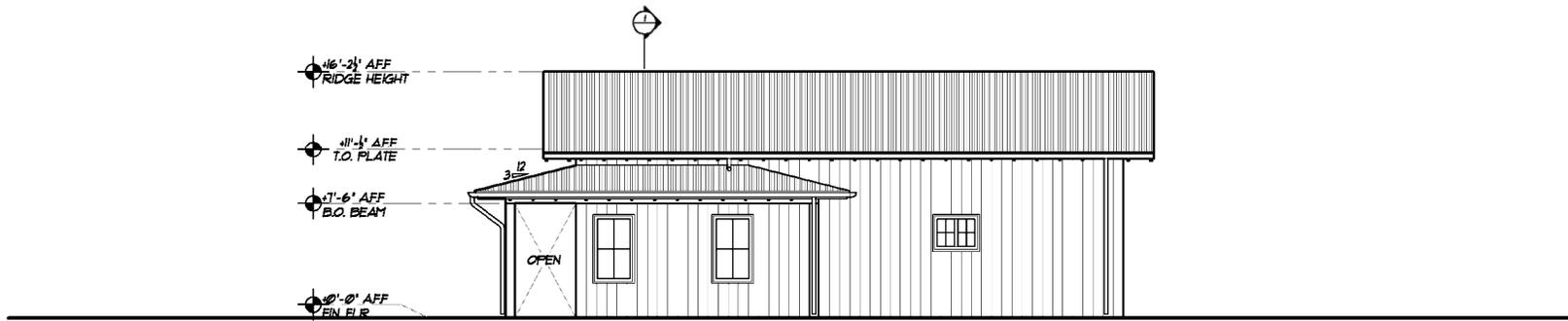


1
A3.4 FARM WORKER RESIDENCE - WEST ELEVATION

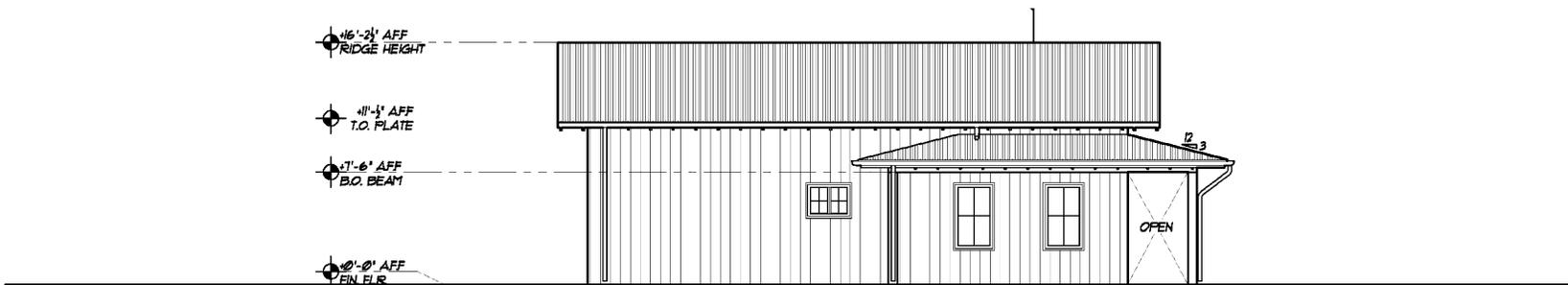


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A3.4 FARM WORKER RESIDENCE - EAST ELEVATION

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1 FARM WORKER RESIDENCE - NORTH ELEVATION
A3.5



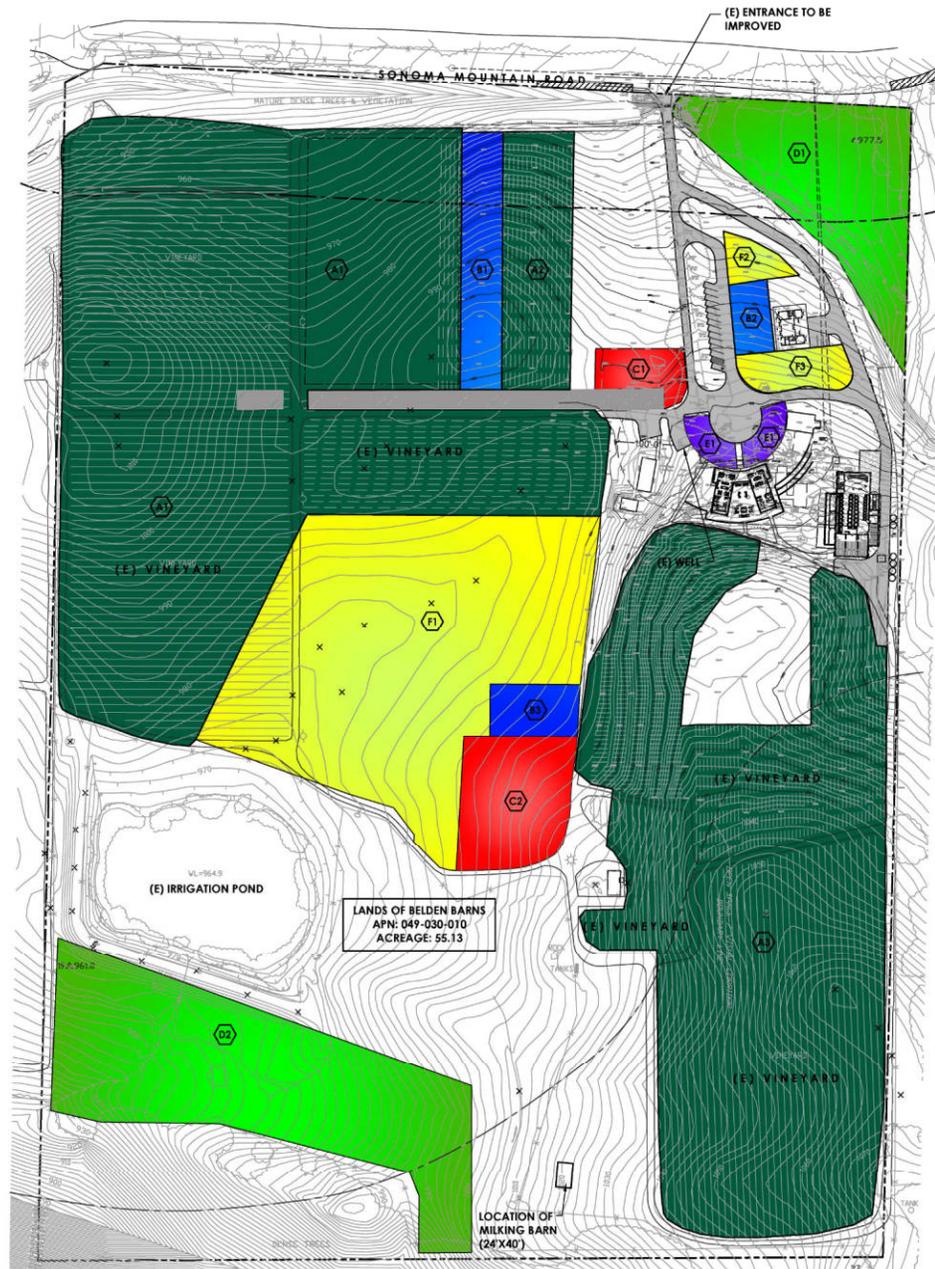
2 FARM WORKER RESIDENCE - SOUTH ELEVATION
A3.5

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SYMBOL	COLOR	CROP & AG USE	AREA (S.F.)	AREA (Acres)	% of PARCEL
A1	Dark Green	Vineyard #1	514,545	11.81	
A2	Dark Green	Vineyard #2	43,938	1.01	
A3	Dark Green	Vineyard #3	385,081	8.84	
B1	Blue	Vegetable #1	26,115	.60	
B2	Blue	Vegetable #2	6,826	.16	
B3	Blue	Vegetable #3	11,323	.26	
C1	Red	Orchard #1	9,610	.22	
C2	Red	Orchard #2	34,870	.80	
D1	Light Green	Grazing #1	72,297	1.66	
D2	Light Green	Grazing #2	147,318	3.38	
E1	Purple	Future Herb Garden #1	8,051	.18	
F1	Yellow	Future Vegetable, Orchard and Grazing #1	197,403	4.53	
F2	Yellow	Future Vegetable, Orchard and Grazing #2	5,660	.13	
F3	Yellow	Future Vegetable, Orchard and Grazing #3	10,566	.24	
TOTAL CROP & AG USE AREA			1,473,611.00	33.82	61.3%
DEVELOPMENT AREA (APPROX)				1.53 AC	.03%

NOTES:
 1. PARCEL SIZE IS 55.13 ACRES.
 2. ADDITIONAL ORCHARD & VEGETABLE AREA TO NOT EXCEED 2.0 ACRES.



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CHAPTER 3 ENVIRONMENTAL ANALYSIS

3.1 SUMMARY OF INITIAL STUDY

3.1.1 Introduction

An Initial Study and Mitigated Negative Declaration (MND) were prepared for an earlier version of the project (see Appendix B in this environmental impact report (EIR)). As discussed in Chapter 2 under Project Background, the version of the project proposed at that time was similar to the project as currently proposed. Table 3-1 shows the primary differences between the project analyzed in the MND and the project as currently proposed.

**Table 3-1
Primary Project Changes**

Project Analyzed in MND (Previously Approved Project)	Proposed Project
Renovate and convert 2,285 sf barn to winery and creamery in Phase I. Construct new 8,300 sf winery building and expand barn by 1,090 sf in Phase II.	Demolish barn and construct new 10,941 sf production building for winery and creamery facilities in one phase.
Demolish 2,490 sf residence and construct 4,270 sf tasting room building and owner's residence.	Demolish 2,490 sf residence and construct 3,033 sf tasting room building. Owner's residence will be constructed separately from this project and will consist of expansion of existing 1,178 sf primary residence.
Host up to 10 events per year, including 2 events with a maximum of 200 attendees.	Host up to 8 events per year, including 1 event with a maximum of 200 attendees.
Convert existing primary residence to a farm family dwelling.	Maintain existing primary residence as primary residence. Expansion of this residence is separate from this project. No farm family dwelling to be added.
Construct new agricultural employee units as part of new winery building.	Construct a separate 1,877 sf agricultural employee unit.
Terrace/vegetable garden proposed east of existing driveway.	Terrace/gardens north of and adjacent to proposed tasting room building.
Renovate dance hall.	No changes to dance hall.
No expansion of row crops and orchard (existing: 2 acres).	Addition of 1 acre of row crops and 1 acre of orchard to existing 2 acres (total: 4 acres).
No new animal barn.	New animal barn to be constructed in northeast portion of site.

sf = square-foot

This section summarizes relevant prior impact analyses, conclusions, and mitigation measures from the 2014 Initial Study, and provides revised or new information, analysis, and mitigation measures where appropriate to reflect the project as currently proposed. In summary, on the basis of the 2014 Initial Study, augmented as appropriate with revised or new analysis and mitigation measures contained herein, it is determined that the following environmental topics have been

sufficiently analyzed and mitigated in this section, and therefore, do not require further analysis in this EIR.

1. Agriculture and Forestry Resources
2. Cultural Resources
3. Hazards and Hazardous Materials
4. Land Use and Planning
5. Minerals
6. Population and Housing
7. Public Services
8. Recreation
9. Utilities and Service Systems

It is also determined that based on the scope of project changes and new information available, the following environmental topics require further analysis in this EIR:

1. Aesthetics (Section 3.2)
2. Air Quality (Section 3.3)
3. Biological Resources (Section 3.4)
4. Geology and Soils (Section 3.5)
5. Greenhouse Gas Emissions (Section 3.6)
6. Hydrology and Water Quality (Section 3.7)
7. Noise (Section 3.8)
8. Transportation and Traffic (Section 3.9)

3.1.2 Summary of Initial Study Environmental Topics

3.1.2.1 Agriculture and Forestry Resources

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to agriculture and forestry resources.

A review of the latest available Sonoma County Important Farmlands Map 2012 (California Department of Conservation 2014) shows that the project site is designated as Farmland of

Statewide Importance, Farmland of Local Importance, and Unique Farmland. The proposed buildings—including the (1) production facility, (2) tasting room, and (3) agricultural employee housing—would be constructed in the existing farm complex area. The approximately 0.67-acre existing farm complex area does not currently support any productive agricultural uses (i.e., vineyards, crops, or garden). The proposed project would add an additional 0.86 acre of developed area to the farm complex, including an additional 9,296 square feet (sf) of building space and associated driveways, located almost entirely in areas mapped as Farmland of Local Importance. The addition of approximately 0.86 acre of developed area to the project site would not constitute a loss of land devoted to agricultural production, as the primary use of the site would remain agricultural production. In addition, as discussed below, this amount of additional built space would comply with the Land Conservation Act (Williamson Act) contract in place for the project site.

As discussed in the 2014 Initial Study, the proposed project is consistent with the existing underlying agricultural zoning and the active Land Conservation Act contract. The project site is in the LIA (Land Intensive Agriculture) B6-40ac density/40 acre minimum, SR (Scenic Resources) zoning district, which allows agricultural processing and promotion with a Use Permit. Pursuant to the Sonoma County Uniform Rules for Agricultural Preserves and Farmland Security Zones Rule 8.2A, the maximum area of the property that can be devoted to buildings is 15%, with a maximum of 5 acres, because the property is under a Prime Land Conservation Act contract (Sonoma County 2013). The 1.53-acre total development area would comprise less than 4 acres of a 55-acre site, well within this maximum, and would therefore comply with the Land Conservation Act contract.

The 2014 Initial Study presents the relevant provisions of the Sonoma County Uniform Rules for Agricultural Preserves and Farmland Security Zones. As determined in the 2014 Initial Study, the proposed project would comply with these rules, including those related to construction and operation of compatible uses on site. Uniform Rule 8.3 defines sale and marketing of agricultural commodities in their natural state or beyond, including winery tasting rooms, promotional activities, marketing accommodations, farmer's markets, stands for the sampling and sale of agricultural products, livestock auction or sale yards, and related signage as compatible activities. Wells, septic systems, and wastewater treatment ponds necessary for agricultural support uses are also considered compatible with agricultural uses (Sonoma County 2013).

The proposed structures would be constructed in the portion of the site currently occupied by the existing farm complex buildings, except a small milking barn located in the southern portion of the site near proposed grazing operations. The existing orchard would remain under the proposed project and would be expanded by 1 acre in size. The existing row crops would also be expanded by 1 acre. Because the proposed structures would be constructed within the previously developed area of the site, they would not interfere with the existing agricultural operations. In addition, the

proposed production facility and tasting room would facilitate the processing and sale of agricultural products grown on the site.

Agricultural promotional events, when directly related to agricultural education or the promotion or sale of agricultural commodities and products produced on the contracted land, are also considered compatible uses, provided that the events last no longer than 2 consecutive days and do not provide overnight accommodations, and that no permanent structure dedicated to the events is constructed or maintained on the contracted land (Sonoma County 2013). No structure solely dedicated to these events is proposed as part of the project.

The County has found that events intended to promote and sell locally produced agricultural products are supportive of the long-term viability of agriculture in the County. Agricultural promotional events require a Use Permit and are limited by conditions to prevent conflicts with agricultural operations (Sonoma County 2013). Typical conditions include, but are not limited to:

- No concerts, festivals, or use of amplified sound outdoors are permitted.
- The project is limited to the following hours of operation:
 - Winery processing/administrative functions are seven days a week 7:00 a.m. to 6:00 p.m. during non-harvest times
 - Winery processing/administrative functions are seven days a week 6:00 a.m. to 10:00 p.m. during harvest or as necessary due to weather conditions.
 - Tasting room hours are by appointment only between 11:00 a.m. to 5:00 p.m., seven days a week.
 - Agricultural Promotional events must end by 9:30 p.m. with all clean up completed by 10:00 p.m.
 - The facility shall not be rented out to third parties for events.
 - The days and hours for Agricultural Promotional events shall be subject to review and approval by an Events Coordinator or similar program established by the County or at the County's direction. The applicant shall submit to the County an annual request and schedule for Agricultural Promotional events for each calendar year including the maximum number of participants, times and dates, and to report the actual events from the previous year. The applicant shall contribute, on an annual basis, a fair share towards the cost of establishing and maintaining the program. The program should consider the fairness for long established uses and establish reasonable costs for managing the program.
 - All events shall be coordinated with the Sonoma Mountain Zen Center so that events are not scheduled on the same dates.

- **Two-Year Review.** A review of event activities under this Use Permit shall be undertaken by the director two (2) years after commencement of the first event to determine compliance with the Conditions of Approval applicable to events. The director shall give notice of this Use Permit review to all owners of real property within three hundred feet (300) of the subject site plus any additional property owners who have previously requested notice. The director shall allow at least ten (10) days for comment. If the director determines that there is credible evidence of noncompliance with the Conditions of Approval applicable to events or that event activities constitute a public nuisance, the director shall refer the matter to the Board of Zoning Adjustments for possible revocation or modification of the Use Permit with regard to events. Any such revocation or modification shall be preceded by a public hearing noticed and heard in compliance with the Zoning Code. This Use Permit review shall not include any other non-event aspect of the original Use Permit approval, unless other Conditions of Approval have not been met, violations have occurred, or the use constitutes a public nuisance.
- **Annual Report.** After commencement of event activities, the owner/operator shall submit a report each year to PRMD [the Permit and Resource Management Department] by January 15th describing the number of events that occurred during the previous year, the day, time, and duration of each event, the number of persons attending each event, the purpose of each event, and any other information required by the director. The annual report shall also include the proposed events for the coming year.
- **Condition Compliance Fee.** Prior to commencement of event activities, the owner/operator shall submit a Condition Compliance Review fee deposit sufficient to cover the review of event activities as described above.

The agricultural promotional events proposed by the project applicant would bring a maximum of 200 people to the site per event. As discussed in Chapter 2, Project Description, the project applicant proposes to host eight events annually on site. Table 2-1 (in Chapter 2, Project Description) outlines the time period and the maximum number of participants for each of the eight proposed events. Only one of these eight events is expected to reach the maximum of 200 participants, with the other seven totaling 150 or fewer. As noted in the conditions above, these promotional events are subject to review and approval by an Events Coordinator or similar program established by the County or at the County's direction. Additionally, event activities would be evaluated after 2 years to determine compliance with the above standards. Outside of these events, operations at the site would remain agricultural in nature (including crop production and livestock/grazing).

As discussed in the 2014 Initial Study, the proposed project would not conflict with existing zoning for, or cause rezoning of, Forestland, Timberland, or timberland zoned Timberland Production, result in the loss of forest land to non-forest use, or involve other changes in the

existing environment which could result in the conversion of forestland to non-forest use. On-site trees are proposed for removal; however, these trees are not considered commercial timber forest. Impacts to on-site trees are discussed in Section 3.4, Biological Resources.

3.1.2.2 Cultural Resources

There are no changes in the physical environment or revisions to the proposed project that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to cultural resources. Since the 2014 Initial Study was prepared, the regulatory requirements for Native American tribal consultation have expanded pursuant to Assembly Bill 52 (AB 52), codified in Public Resources Code Sections 5097.94 and 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. The Notice of Preparation prepared for the proposed project, dated September 9, 2015, serves as the AB 52 project Notification (Appendix A).

The Historic Evaluation and the Archaeological Survey that were previously conducted on the project site yielded no evidence of historical resources, archaeological resources, or human remains (Tom Origer & Associates 2012a, 2012b). In addition, the 2014 Initial Study indicated that no paleontological resources or unique geological resources were observed during preliminary investigations at the project site. Because previous cultural resource surveys of the site covered the entire 55-acre property, proposed changes to the project layout do not change the findings reported in the 2014 Initial Study (Appendix B).

The 2014 Initial Study identified that proposed excavation activities could have the potential to encounter undiscovered subsurface archaeological resources and human remains.

Consultation was initiated for the project under AB 52, and MM-CUL-1 was developed as a result of the consultation. Information regarding consultation is contained in a confidential appendix to this EIR (Appendix I). State law requires that Appendix I remain in confidential files at PRMD.

Implementation of MM-CUL-1 would ensure the proposed project would have a less-than-significant impact on cultural resources in the event resources are discovered on the site, and is included in this EIR (see Table ES-1).

MM CUL-1 a. There shall be an archaeological or tribal monitor present during all initial ground-disturbing activities into native soils on the project. If the archaeologist or tribal monitor determine, based on their knowledge and experience, that there is no further need for monitoring, the monitoring may cease.

- b. All building and/or grading permits shall have the following note printed on plan sheets:

“In the event that archaeological resources such as pottery, arrowheads, midden or culturally modified soil deposits are discovered at any time during grading, scraping or excavation within the property, all work shall be halted in the vicinity of the find and County PRMD project Review staff shall be notified and a qualified archaeologist shall be contacted immediately to make an evaluation of the find and report to PRMD. PRMD staff may consult and/or notify the appropriate tribal representative from tribes known to PRMD to have interests in the area. Artifacts associated with prehistoric sites include humanly modified stone, shell, bone or other cultural materials such as charcoal, ash and burned rock indicative of food procurement or processing activities. Prehistoric domestic resources include hearths, firepits, or house floor depressions whereas typical mortuary resources are represented by human skeletal remains. Historic artifacts potentially include all by products of human land use greater than 50 years of age including trash pits older than fifty years of age. When contacted, a member of PRMD project Review staff and the archaeologist shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery. PRMD may refer the mitigation/protection plan to designated tribal representatives for review and comment. No work shall commence until a protection/mitigation plan is reviewed and approved by PRMD project Review staff. Mitigations may include avoidance, removal, preservation and/or recordation in accordance with California law. Archeological evaluation and mitigation shall be at the applicant’s sole expense.

If human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and PRMD staff, County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American, the Native American Heritage Commission must be contacted by the Coroner so that a “Most Likely Descendant” can be designated and the appropriate

provisions of the California Government Code and California Public Resources Code will be followed.”

3.1.2.3 Hazards and Hazardous Materials

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts associated with hazards and hazardous materials.

As discussed in the 2014 Initial Study, the project would result in no impact with regards to emitting hazardous emissions or handling hazardous materials within 0.25 mile of a school; being located on a hazardous material site; being located near a public or private airport; or impairing or interfering with an emergency response or evacuation plan.

The project would be required to comply with the County’s fire code, including the provision of on-site access and turnarounds for fire equipment, use of low-flammability building materials, and installation of fire sprinkler systems and water storage tanks for fire protection. In addition, the cultivated and landscaped vegetation around the proposed buildings would serve as fire breaks around the proposed structures. Compliance with the County’s standards for fire-safe development, in addition to the proposed site layout, would ensure that the proposed project would not expose people or structures to wildland fires.

Construction of the proposed project would require the use of hazardous materials (e.g., diesel, solvents, oil). Improper handling or storage of these materials could potentially result in spills on site. MM-HAZ-1 (mitigation measure 8.a from the 2014 Initial Study reprinted below) would ensure that impacts associated with hazardous material transport, use, and storage during construction would remain less than significant. This mitigation measure is included in this EIR (see Table ES-1).

MM-HAZ-1 During construction, hazardous materials shall be stored away from drainage or environmentally sensitive areas, on non-porous surfaces. Storage of flammable liquids shall be in accordance with Sonoma County Fire Code.

A concrete washout area, such as a temporary pit, shall be designated to clean concrete trucks and tools. At no time shall concrete waste be allowed to enter waterways, including creeks and storm drains.

Vehicle storage, fueling and maintenance areas shall be designated and maintained to prevent the discharge of pollutants to the environment. Spill cleanup materials shall be kept on site at all times during construction, and spills shall be cleaned up immediately. In the event of a spill of hazardous materials, the

applicant will call 911 to report the spill and take appropriate action to contain and clean up the spill.

Portable toilets shall be located and maintained to prevent the discharge of pollutants to the environment.

The project consists of a winery (agricultural processing facility) with an associated tasting room. The processing and fermentation of the grapes into wine includes the use and maintenance of machinery and equipment that require the transport, use, and disposal of hazardous materials (e.g., oils, diesel, solvents, lubricants, etc.). The project is not anticipated to produce or generate hazardous materials. The project must comply with code requirements already in place and mitigation measure MM-HAZ-1 that would ensure the proper storage and use of any hazardous materials associated with the winery would not create a hazard to the public or the environment. No changes have been made to the previously approved project with regards to project operations that would have an impact on the use of hazardous materials.

3.1.2.4 Land Use and Planning

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to land use and planning.

As was previously determined in the 2014 Initial Study, the proposed project would not physically divide an established community. The project is located within an established rural area, and would not alter ownership of the project parcels, or reconfigure existing parcels or roadways.

The 2014 Initial Study presented a number of relevant *Sonoma County General Plan 2020* (Sonoma County 2008) policies. Additional relevant policies from the *Sonoma County General Plan 2020* and *Bennett Valley Area Plan*, and applicable County ordinances, are presented in this EIR. As discussed in the 2014 Initial Study and in this EIR, with implementation of measures proposed as part of the project, and mitigation measures identified in this EIR, the proposed project would be consistent with the *Sonoma County General Plan 2020* Land Intensive Agriculture land use designation, and generally consistent with the goals and policies of the County General Plan. The Board of Zoning Adjustments found the project is consistent with the General Plan policies and Land Intensive Agriculture land use designation including Objective AR-5.1 which aims to facilitate agricultural production by allowing agricultural processing facilities and uses in all Agricultural Land Use categories. The project is consistent with Goal AR-5, which states that agricultural support uses should be conveniently and accessibly located to the primary agricultural activity in the area, because the project is located in an area producing grapes. Processing of agricultural products of a type grown or produced primarily on site or in

the local area and tasting rooms and other temporary, seasonal, or year-round sales and promotion of agricultural products grown or processed in the County, subject to the criteria of General Plan Policies AR-6d and AR-6f, are uses permitted with a Use Permit in the Land Intensive Agriculture designation. The criteria of policy AR-6d is met because the tasting room, agricultural promotional events and industry-wide events would promote the winery and the wine, cheese, and farm products produced on site, helping to increase wine club membership and thereby directly increase marketing and sales of those products.

The proposed project would also conform to the County's LIA zoning with a Scenic Resources (SR) combining district and Riparian Corridor (RC) combining zone. Scenic resources are discussed in greater detail in Chapter 3.2, Aesthetics, of this EIR. Riparian corridors are discussed in greater detail in Chapter 3.4, Biological Resources, of this EIR. Article 10, Section 26-04-020(f and i) of the County zoning regulations permits (i) tasting rooms and other temporary, seasonal, or year-round sales and promotion of agricultural products grown or processed in the County subject to the minimum criteria of General Plan Policy AR6-d and AR-6f; (f) Preparation of agricultural products which are not grown on site, processing of agricultural product of a type grown or produced primarily on site or in the local area, storage of agricultural products grown or processed on site, and bottling or canning of agricultural products grown or processed on site, subject, at a minimum, to the criteria of General Plan Policies AR-5c and AR-5g (Sonoma County Municipal Code 2012). The proposed project would be in compliance with the setback, lot coverage, and parking requirements of the LIA zoning district.

As was determined in the 2014 Initial Study, the proposed project would not conflict with any habitat conservation plan or natural community conservation plan.

3.1.2.5 Mineral Resources

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to mineral resources.

As was previously determined in the 2014 Initial Study, the proposed project would not result in the loss of a known mineral resource, and would not result in the loss of a locally known mineral resource recovery site delineated in a local general plan, specific plan, or other land use plan. Therefore, the project would not be expected to result in a significant impact on mineral resources.

3.1.2.6 Population and Housing

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts associated with population and housing.

As was previously determined in the 2014 Initial Study, the proposed project would not induce substantial population growth in the area, either directly or indirectly. As discussed in Chapter 2, Project Description, the proposed project would require five full-time and four part-time employees, with up to seven additional employees during harvest season. Two of these employees are currently employed on site and reside on site. The project would not increase the number of employees residing on the site and would therefore not result in a substantial increase in population in the area. The project would remove two dwellings (a legal non-conforming residence and the existing legal non-conforming agricultural employee housing unit). This would not result in a significant displacement of housing or people, as the project would include construction of a replacement for the agricultural employee unit, and removal of a single residence would not be expected to result in a significant impact to population and housing.

3.1.2.7 Public Services

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to public services.

As was previously determined in the 2014 Initial Study, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or create the need for new or physically altered governmental facilities which could cause significant environmental impacts. Therefore, the project would not have a significant adverse effect with regard to public services.

3.1.2.8 Recreation

There are no changes in the physical or regulatory environment, or revisions to the proposed project, that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to recreation.

As was previously determined in the 2014 Initial Study, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, include recreational facilities, or require the construction or expansion of recreational facilities which have an adverse effect on the environment. Therefore, the project would not have a significant adverse impact on recreation.

3.1.2.9 Utilities and Service Systems

There are no changes in the physical or regulatory environment, or revisions to the proposed project that would substantially alter any previous analysis or conclusions reached in the 2014 Initial Study with respect to project impacts to utilities and service systems.

As was previously determined in the 2014 Initial Study, the proposed project would not exceed wastewater treatment requirements of the Regional Water Quality Control Board (RWQCB); would provide adequate wastewater treatment capacity to serve the project's requirements; and would not require or result in the construction of new water or wastewater treatment facilities, or expansion of existing facilities, the construction of which could cause significant environmental impacts.

The proposed project would not be served by public water or wastewater treatment facilities. As described in Chapter 2, Project Description, winery sanitary and process wastewater that would be generated would be treated and disposed of on site in a filled land leach field system. The system includes a designated expansion/reserve area for the winery sanitary water flows. The reserve system for process water disposal includes a screen for solids filtration, septic/settling tanks, aeration, and a commercial grade pre-treatment unit, in conformance with applicable North Coast RWQCB standards. Treated water from the reserve system will be conveyed to the existing on-site vineyard irrigation system to provide supplemental water for the vineyards when the primary system is operating at capacity. The proposed wastewater disposal system must be reviewed and approved by the RWQCB and go through the County PRMD Well and Septic Section permitting process. Potential impacts associated with development of the proposed wastewater treatment system and septic systems related to aesthetics, air quality, biology, geology and soils, greenhouse gas emissions, hydrology, noise, and transportation and traffic are discussed under the corresponding sections of this EIR.

The 2014 Initial Study determined that the project would not require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental impacts. The stormwater system would be designed to have no increase between the pre-development and post development flows. Low Impact Development features would be employed such as drainage swales, culverts where drainages cross roadways, and drainage control features at the inlet and outlets of culverts. The County's standard conditions of approval regarding drainage and runoff would ensure that impacts associated with stormwater runoff would be less than significant. Potential impacts associated with construction of storm drainage facilities related to aesthetics, air quality, biology, geology and soils, greenhouse gas emissions, hydrology, noise, and transportation and traffic are discussed under the corresponding sections of this EIR.

The 2014 Initial Study determined that the proposed project would have sufficient water supplies available to serve the project from existing entitlements and resources. As discussed in Chapter 2, Project Description, the project would use groundwater to supply water for the domestic water and landscape/livestock water. The project would also use treated winery/creamery process water to provide additional supplemental water for the existing vineyards. The on-site irrigation pond would continue to serve as a water source for the existing vineyards. Groundwater supply and usage is discussed in Section 3.7, Hydrology and Water Quality, of this EIR.

The 2014 Initial Study determined that the proposed project would be served by a landfill with permitted capacity to accommodate the Project’s solid waste disposal needs, and would comply with federal, state, and local statutes and regulations related to solid waste. The applicant has estimated the project would generate the following solid waste: one 96-gallon container once per week, year round, and one additional 96-gallon container once per week for 2 months at harvest.

The 2014 Initial Study indicated that Sonoma County has a solid waste management program that provides solid waste collection and disposal for the County. This program can accommodate the permitted collection and disposal of waste that would be generated by the project.

3.1.3 References

California Department of Conservation. 2014. “Sonoma County Important Farmland Map 2012.” California DOC Division of Land Resources Protection, Farmland Mapping and Monitoring Program.

Sonoma County. 2008. *Sonoma County General Plan 2020*, as amended. Adopted September 23, 2008.

Sonoma County. 2013. Sonoma County Uniform Rules for Agricultural Preserves and Farmland Security Zones. Adopted December 13, 2011. Amended May 7, 2013.

Sonoma County Municipal Code. 2012. Sonoma County Code Zoning Regulations: Article 10 26-10-020. Last amended January 31, 2012.

Sonoma County Municipal Code. 2014a. Sonoma County Code Zoning Regulations: Article 2 Section 26-02-140. Last amended November 24, 2014.

Sonoma County Municipal Code. 2014b. Sonoma County Code Zoning Regulations: Article 04 Section 26-04-010. Last amended November 24, 2014.

Sonoma County Municipal Code. 2014c. Sonoma County Code Zoning Regulations: Article 88 Section 26-88-215 and Section 26-88-210. Last amended July 29, 2014.

Tom Origer & Associates. 2012a. *Historic Evaluation of the Belden Barns Complex 5561 Sonoma Mountain Road, Santa Rosa, Sonoma County, California*. Prepared for SMA, Inc. March 6, 2012.

Tom Origer & Associates. 2012b. *An Archeological Survey for the Belden Barns Project at 5561 Sonoma Mountain Road, Sonoma County, California*. Prepared for SMA, Inc. March 6, 2012.

3.2 AESTHETICS

This section describes the existing visual setting of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, including cumulative impacts, and identifies mitigation measures related to implementation of the proposed project.

3.2.1 Methodology

Methods used to analyze visual change associated with the Belden Barns Farmstead and Winery project (proposed project) are in compliance with the County Permit and Resource Management Department's Visual Assessment Guidelines (County of Sonoma n.d.). The primary tasks in assessing the proposed project's visual and aesthetic impacts consist of viewing the site from publicly accessible locations in the vicinity of the project site, selecting representative public viewpoints for consideration in the environmental impact report (EIR), describing the site from those locations, determining the sensitivity level of the site, studying photo-simulations that illustrate the post-project appearance of the proposed project to help assess the project's visual dominance within its setting, and determining the significance of impacts.

Dudek environmental planners conducted a field visit of the site and surrounding area on September 1, 2015, to assess the existing visual character of the landscape. Laura Peltz, senior environmental specialist with the County of Sonoma Permit and Resource Management Department, took photographs of the site from the five viewpoints used in the evaluation (discussed in detail in 3.2.2.2) on October 30, 2015, and November 5, 2015. Viewpoints from which to assess the potential aesthetic impacts of the proposed project were identified by the Sonoma County Permit and Resource Management Department staff, and viewing conditions from the viewpoints to the project site were field verified by Dudek. Photo-simulations of the proposed project were prepared from each of the identified viewpoints to illustrate the visual change anticipated to occur as a result of project development. The project site's sensitivity level (low, moderate, high, or maximum) was determined using the criteria in the County's Visual Assessment Guidelines. The project's visual dominance was determined by assessing a variety of factors including how visible the project would be from public viewpoints, how strongly project elements would stand out, and how different project elements would appear when compared to existing elements in the surrounding landscape in terms of form, line, color, and texture. Visual dominance was also determined using the characteristics of Dominant, Co-Dominant, Subordinate, or Inevident as established in the County's Visual Assessment Guidelines (County of Sonoma n.d.).

3.2.2 Environmental Setting

This section describes the existing conditions in the project area and identifies the resources that could be affected by the proposed project.

3.2.2.1 Existing Conditions

The 55-acre project site is located at 5561 Sonoma Mountain Road in southeastern Sonoma County, approximately 7 miles east of the City of Rohnert Park. Situated in a rural setting, the project site contains pastureland, vineyards, an irrigation pond, an old barn, and several other structures including a main residence. Relatively dense clusters of oak and juniper trees border the northern, eastern, and western project site boundary. Sonoma Mountain Road, a narrow unmarked road designated by the County as a scenic corridor (and a visual corridor), abuts the project boundary on the north. Sonoma Mountain Road and most of the property in the area located south of the road is within the Sonoma Mountain Scenic Landscape Unit. The primary developed area adjacent to Sonoma Mountain Road is situated between 970 and 995 feet above mean sea level (amsl). Similar to the project site, the landscape in the immediate surrounding area supports a mixture of vineyards, pasturelands, single-family residential development, and upland oak woodlands. An approximate 226-acre parcel and 169-acre parcel protected by the Sonoma County Agricultural Preservation and Open Space District are located to the east and the south of the property. The property immediately north (across Sonoma Mountain Road) of the project site supports pasture land and vineyards. The property to the west contains two single-family residences, pastureland, vineyards, and oak trees along its western and southern border. Other properties in the vicinity contain a similar mixture of single-family residences, agricultural uses, and oak woodland vegetation.

On-Site Vegetation

On-site vegetation communities include annual grassland, riparian habitat, orchards, and vineyards (refer to Biological Resources Figure 3.4-1). Along with annual grassland, which is dispersed throughout the site, the property is currently planted with approximately 25 acres of wine grapes, pasture, fruit orchard, and vegetable crops. An agricultural reservoir is located along the western site boundary, and South Fork Matanzas Creek runs across the southwestern corner of the property. The creek supports riparian vegetation and associated habitats.

On-Site Structures

As shown on Figure 2-3, Aerial View of Project Site, in Chapter 2, Project Description, existing structures on the project site are primarily located in the northeast corner of the property. The project site is currently developed with an agricultural complex which includes three residences (Buildings 1, 2 and 3), two barns (Buildings 4 and 5), and two outbuildings (Building 6 and 7). According to the Historical Evaluation of the Belden Barns Complex (Tom Origer & Associates 2012, Appendix J), Building 1 is a single-story, rectangular, “hipped” roof dwelling with a porch that wraps around the structure on three sides. The building is currently clad with channel rustic siding, and the windows are double-hung and fixed vinyl sashes. Building 2, a residence, has a

rectangular footprint, gabled roof, and is clad with cove rustic siding. Both the north and south side of building feature gabled roof additions clad with drop siding and large, multi-paned windows. Building 3 is a gable-roofed dwelling over a three-car garage, and Building 4 is a gabled, corrugated metal sheet roofed barn. Building 5 is a large barn featuring a gable roof comprised of composition shingles. Buildings 6 and 7 are small, board and batten sided sheds.

Existing sources of lighting on the project site included interior and exterior lamps installed within and on the exterior of Buildings 1 through 5 for general illumination, safety, and security purposes.

Along with oak and eucalyptus trees installed along Sonoma Mountain Road, cypress trees cultivated along the project site driveway allow for only partial views of the property. While limited portions of the site are visible from the intersection of Sonoma Mountain Road and the project driveway due to gaps in the otherwise dense assemblage of site perimeter vegetation, existing on-site structures are not readily visible to passing motorists on Sonoma Mountain Road.

Project Vicinity

Similar to the project site, properties in the surrounding area contain a mixture of single-family residential development, agricultural uses, and a mixture of annual grassland and oak woodland vegetation. The large, 226-acre and 169-acre parcels to the east and south of the project site are owned by the County of Sonoma and comprise the northern portion of the North Sonoma Mountain Regional Park and Open Space Preserve. The 820-acre park and preserve contains large areas of continuous oak woodlands separated by low grassland covered hills. The 3.8-mile North Sonoma Mountain Ridge Trail and the 1-mile Umbrella Tree Trail are provided within the park's boundaries and are available for hiking, biking, and equestrian use. The North Sonoma Mountain Ridge Trail is a component of the Bay Area Ridge Trail and connects the regional park with nearby Jack London State Historic Park. Within the regional park, the trails also provide access to the Bennett Valley Overlook and the Umbrella Tree Overlook which provide sweeping views of the surrounding landscape.

Properties surrounding the project site are designated Diverse Agriculture, Resources and Rural Development, Rural Residential, and Land Intensive Agriculture with densities ranging from one dwelling unit per 15 acres to 40 acres (Sonoma County 2008). Properties to the north (across Sonoma Mountain Road) and the west are planted with grapevines. In addition to grapevines and pastureland, two residences are located on the parcel located immediately west of the project site.

3.2.2.2 Viewpoints

For the purpose of this study, five public viewpoints were examined: one roadway (Sonoma Mountain Road) and four locations on trails in the adjacent North Sonoma Mountain Regional Park.

Figure 3.2-1 shows the locations of these viewpoints. The location, elevation, and quality of existing views to the project site and surrounding area from the five viewpoints are described below.

Viewpoint 1 – Sonoma Mountain Road

Viewpoint 1 is located on Sonoma Mountain Road and more specifically, where the roadway intersects the project driveway near the northeastern corner of the project site (see Figure 3.2-1). Sonoma Mountain Road is a narrow and unstriped two-lane road designated by the County General Plan as a Scenic Corridor. The *Bennett Valley Area Plan* designates the road and adjacent lands as a visual corridor (County of Sonoma 2011). Located at an approximate elevation of 970 feet amsl, the view orientation from Viewpoint 1 to the project site is to the south.

As shown on Figure 3.2-2, a tubular steel and wire entrance gate is installed at the project site entrance and a small wooden sign painted with the words “Belden Barns” is affixed to a simple post and wire perimeter fence. Tall eucalyptus and cypress trees tower over the viewer at Viewpoint 1, and mature cypress trees line the project site driveway beyond the entrance gate. While foreground trees obscure the majority of the project site from view, a small gap in vegetation permits views to the grassland covered northeastern corner of the project site and a gabled, corrugated metal sheet roofed barn (i.e., Building 4) located approximate 550 feet away. South of the old barn, dark green and spreading oak woodland vegetation is dense, and the terrain rises to form a series of oak woodland with occasional pockets of grassland covered hills in the distance. Several tall and skylined electric line support towers are located atop the distant ridgeline to the south.

Viewpoint 2 – North Sonoma Mountain Regional Park and Open Space Preserve

Viewpoint 2 is located in the North Sonoma Mountain Regional Park and Open Space Preserve, an approximate 820-acre park and open space preserve that borders the project site to the east and south. More specifically, Viewpoint 2 is situated on the North Sonoma Mountain Ridge Trail and approximately 280 feet east of the southeastern corner of the project site (see Figure 3.2-1). Located at an approximate elevation of 1,110 feet amsl, viewers at Viewpoint 2 are located at a superior (i.e., higher in elevation) position in relation to the project site (about 120 feet higher). Lastly, view orientation from Viewpoint 2 to the project site is to the northwest.

As shown in Figure 3.2-3, the foreground view from Viewpoint 2 consists of an expanse of tan colored and relatively low annual grasslands separated by the narrow, smooth texture dirt surface of North Sonoma Mountain Ridge Trail, which quickly disappears out of the image frame. Beyond the foreground grasslands, the dark green foliage and spreading habit of coast live oaks and light colored interior live oak trees dominate the scene and extend to the middle-ground and background distances. With the exception of small pockets of tan grasslands, distant undeveloped hillsides to the north are covered by dense oak woodland vegetation. The pitched,

light green colored roof of a large barn on the project site (i.e., Building 5) is barely visible through a noticeable gap in dense oak woodland vegetation in the foreground of Viewpoint 2. The barn's roof color tends to blend in with the color of surrounding oak trees, and the rest of the barn building is blocked by existing vegetation.

Viewpoint 3 – North Sonoma Mountain Regional Park and Open Space Preserve

Also located within the regional park and open space preserve, Viewpoint 3 is situated on the North Sonoma Mountain Ridge Trail approximately 745 feet southeast of Viewpoint 2 and near a dense grove of oak trees (see Figure 3.2-1). Situated at an elevation of approximately 1,250 feet amsl, viewers at Viewpoint 3 are at a superior (i.e., higher) position in relation to the project site (about 260 feet higher). Viewpoint 3 is located approximately 0.18 mile to the southwest of the project site's southwestern most corner.

As shown on Figure 3.2-4, the view from Viewpoint 3 captures the entire eastern portion of the project site and includes the large, pitched green-roof barn (i.e., Building 5) along the site's eastern boundary, grapevines planted on a noticeable knolls on the northern and eastern portions of the site, and the irrigation pond located in the southwestern corner of the property. The foreground of this view consists of tan colored and low knolled grasslands interspersed with both small and large oak woodland trees (see Figure 3.2-4). The large live oak tree in the foreground obstructs distant oak woodland and annual grassland covered hills from view; however, a prominent, darkly colored peak is visible as is the hazy silhouette of seemingly low mountainous terrain in the background distance to the northwest. The red-brown wood walls exterior and lightly colored doors of an existing barn located approximately 0.37 mile to the northwest of Viewpoint 3 on the project site are visible and tend to stand out when viewed against the green foliage of surrounding mixed oak woodland trees. Tan colored annual grasslands on the project site are visible and tend to contrast with the light green color displayed by the vineyards planted across the property.

Viewpoint 4 – North Sonoma Mountain Regional Park and Open Space Preserve

Viewpoint 4 is located at the Bennett Valley Overlook, the highest publicly accessible vantage point in the North Sonoma Mountain Regional Park and Open Space Preserve. Located just west of a high voltage transmission line corridor, the Bennett Valley Overlook is located approximately 0.5 mile southeast of Viewpoint 3 and 0.6 mile southeast of the project site (about 780 feet higher). Lastly, Viewpoint 4 is located at an approximate elevation of 1,770 feet amsl.

As shown on Figure 3.2-5, the light to dark green foliage and relatively tall form of mixed conifer-hardwood forests and low, tan colored annual grasslands on steep, descending terrain composes the foreground of the existing view from Viewpoint 4. Groupings of blue oak trees separate visible patches of annual grasslands and the rectangular form of vineyards, and

generally lightly colored exteriors of rural residences occupy the middle-ground viewing distance. The visible landscape appears as a mosaic of lightly colored grasslands and vineyards interspersed among comparatively darker colored strips and clusters of trees. The Bennett Valley landform extends to rising terrain covered with dense tree clusters and pockets of low grasslands to the north and west. The hazy and dark blue silhouette of distant mountains create a seemingly low horizon line. From this vantage point, the most distinguishable features on the project site are the rectangular form and light green color of vineyards and the semi-circular, copper colored water of the irrigation pond. This viewpoint is so distant from the project site that the existing barn (i.e., Building 5) is not overly discernible from the tall trees surrounding it. The lightly colored exterior of the main residence's southern wall and the adjacent guest house is detectable when viewed against the green colors in the surrounding landscape; however, these structures display a low form and are primarily hidden from view by on-site terrain. As a result, these features are not visually prominent as viewed from Viewpoint 4. Other small rural residential developments are scattered throughout the flatter grasslands in the distance.

Viewpoint 5 – North Sonoma Mountain Regional Park and Open Space Preserve

Viewpoint 5 is situated in the western portion of the regional park and open space preserve, and more specifically, at the Umbrella Tree Trail overlook. The overlook is located approximately 0.38 mile south of the southern boundary of the project site (see Figure 3.2-1) and is situated at an approximate elevation of 1,515 amsl. At the overlook, viewers are situated at a superior position in relation to the project site (about 525 feet higher). The views at the overlook are available to trail-based recreationists at the western end of the Umbrella Tree Trail.

Facing northeast, the viewpoint captures most of the project site. The copper colored water of the irrigation pond is visible as is the light green colored vineyards and the expanse of tan colored annual grasslands occurring in the central portion of the project site (see Figure 2.3-6). Large trees lining Sonoma Mountain Road and the project site's driveway are visible but tend to blend in with similarly colored trees on properties to the north. Portions of the main residence, guest house, and green roofed barn are visible due to contrast in color with the tans and greens of surrounding grasslands and trees. Residential development on the neighboring property to the west of the project site is closer in distance to Viewpoint 5 and thus, structures on the neighboring property are more visually prominent than new structures on the project site. Annual grasslands in the foreground and middle-ground dominate the view and are occasionally separated into clusters by dense strips of dark colored mixed oak woodlands and comparatively lightly colored vineyards. The density of oak woodlands increases with distance and elevation as the rising hillsides and mountains in the background have sparse residential developments and are dominated by darkly colored trees occasionally interrupted by smooth patches of grasslands.

3.2.2.3 Existing Visual Sensitivity Determination

For purposes of this study, the visual sensitivity of the project site is based on the following definitions provided in the County Permit and Resource Management Department’s Visual Assessment Guidelines, as outlined in Table 3.2-1.

**Table 3.2-1
Site Sensitivity**

Sensitivity	Characteristics
Low	The site is within an urban land use designation and has no land use or zoning designations protecting scenic resources. The project vicinity is characterized by urban development or the site is surrounded by urban zoning designations and has no historic character and is not a gateway community. The project site terrain has visible slopes less than 20 percent and is not on a prominent ridgeline and has no significant natural vegetation of aesthetic value to the surrounding community.
Moderate	The site or portion thereof is within a rural land use designation or an urban designation that does not meet the criteria above for low sensitivity, but the site has no land use or zoning designations protecting scenic resources. The project vicinity is characterized by rural or urban development but may include historic resources or be considered a gateway to a community. This category includes building or construction sites with visible slopes less than 30 percent or where there are significant natural features of aesthetic value that are visible from public roads or public use areas (i.e., parks, trails etc.).
High	The site or any portion thereof is within a land use or zoning designation protecting scenic or natural resources, such as General Plan designated scenic landscape units, coastal zone, community separators, or scenic corridors. The site vicinity is generally characterized by the natural setting and forms a scenic backdrop for the community or scenic corridor. This category includes building and construction areas within the SR designation located on prominent hilltops, visible slopes less than 40 percent or where there are significant natural features of aesthetic value that are visible from public use areas (i.e., parks, trails etc.). This category also includes building or construction sites on prominent ridgelines that may not be designated as scenic resources but are visible from a designated scenic corridor.
Maximum	The site or any portion thereof is within a land use or zoning designation protecting scenic resources, such as General Plan designated scenic landscape units, coastal zone, community separators, or scenic corridors. The site vicinity is generally characterized by the natural setting and forms a scenic backdrop for a designated scenic corridor. This category includes building or construction sites within the scenic resource designation on or near prominent ridgelines, visible slopes greater than 40 percent or where there are significant natural features of aesthetic value that are visible from a designated scenic corridor.

Source: County of Sonoma n.d.

The project site is characterized mainly by agricultural uses such as vineyards, fruit orchards and vegetable plots interspersed with annual grasslands. An owner’s residence, farmworker residences, and agricultural buildings are confined to the northeast portion of the property. The property is consistent with nearby properties in terms of visual character as surrounding parcels support agricultural use and single-family residential development. The zoning designation of the site is LIA (Land Intensive Agriculture) with an SR (Scenic Resources) combining district and RC (Riparian Corridor) combining district. The northern boundary of the project site abuts Sonoma Mountain Road, a County-designated scenic corridor (County of Sonoma 2008) and a *Bennett Valley Area Plan*-designated visual corridor (County of Sonoma 2011). However, due to the presence of dense vegetation along the south side of the road, the site is well screened from view of

passing motorists. The project site and surrounding area located south of Sonoma Mountain Road is located in the Sonoma Mountain Scenic Landscape Unit (County of Sonoma 2008).

For purposes of this analysis, the project site is considered to have high visual sensitivity due to its location within a *Sonoma County General Plan 2020* (General Plan)-designated scenic landscape unit, the Scenic and Visual Corridor designation applied to nearby Sonoma Mountain Road, and the SR (Scenic Resources) combining district overlay applied to the project site. As the site has been developed for agricultural and residential use, the site does not contain significant natural features of aesthetic value. Furthermore, the site does not contain prominent hilltops, slopes, or ridgelines that would suggest a higher site sensitivity designation.

3.2.3 Regulatory Framework

Federal

There are no federal regulations pertaining to aesthetics applicable to the proposed project.

State

California Department of Transportation (Caltrans) Scenic Highway System

The California Department of Transportation (Caltrans) administers the state Scenic Highway Program to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways (California Streets and Highways Code, Section 260 et seq.). The state Scenic Highway Program includes a list of officially designated highways and highways that are eligible for designation. If a highway is listed as eligible for official designation, it is part of the Scenic Highway Program, and care must be taken to preserve its eligibility status. The program encompasses the regulation of land use and density of scenic highway adjacent development; attention to the design of sites and structures; attention to and control of signage, landscaping, and grading; and other restrictions applicable to development within the scenic highway viewshed.

Two highways in Sonoma County have been officially designated by Caltrans as state scenic highways: State Route (SR-) 116 from SR-1 east and south to Sebastopol city limits and SR-12 from Danielli Avenue east of Santa Rosa to London Way near Agua Caliente (Caltrans 2016). SR-116 is located approximately 13 miles northwest of the project site, and SR-12 is located approximately 5 miles east of the project site.

Local

Sonoma County General Plan 2020

The project site is located in unincorporated Sonoma County and is subject to policies set forth in the *Sonoma County 2020 General Plan* (Sonoma County 2013). The Open Space and Resource Conservation (OSRC) element of the General Plan designates Scenic Landscape Units, Community Separators, and Scenic Corridors within the County. Figure OSRC-5i (Sonoma County 2014) shows that the project site falls within a Scenic Landscape Unit, and that Sonoma Mountain Road is a designated Scenic Corridor (County of Sonoma 2008) and a designated Visual Corridor (County of Sonoma 2011).

The Policy for Scenic Landscape Units, Section 2.2 of the OSRC Element of the *Sonoma County General Plan 2020*, provides objectives, policies, and programs regarding aesthetics within Scenic Landscape Units, including the following:

Objective OSRC-2.1 Retain a rural scenic character in Scenic Landscape Units with very low intensities of development. Avoid their inclusion within spheres of influence for public service providers.

Policy OSRC-2b Avoid commercial or industrial uses in Scenic Landscape Units other than those that are permitted by the agricultural or resource land use categories.

Policy OSRC-2d Unless there are existing design guidelines that have been adopted for the affected area, require that new structures within Scenic Landscape Units meet the following criteria:

- Site and design structures to take maximum advantage of existing topography and vegetation in order to substantially screen them from view from public roads.
- Minimize cuts and fills on hills and ridges.
- Minimize the removal of trees and other mature vegetation. Avoid removal of specimen trees, tree groupings, and windbreaks.
- Where existing topography and vegetation would not screen structures from view from public roads, install landscaping consisting of native vegetation in natural groupings that fits with the character of the area in order to substantially screen structures from view. Screening with native, fire retardant plants may be required.
- Design structures to use building materials and color schemes that blend with the natural landscape and vegetation.

- To the extent feasible, cluster structures on each parcel within existing built areas and near existing natural features such as tree groupings.

Policy OSRC-2h

For development on parcels located both within Scenic Landscape Units and adjacent to Scenic Corridors, apply the more restrictive siting and setback policies to preserve visual quality.

The Policy for Scenic Corridors, Section 2.3 of the OSRC Element of the General Plan, provides objectives, policies, and programs regarding aesthetics within Scenic Corridors including the following:

Policy OSRC-3c

Establish a rural Scenic Corridor setback of 30 percent of the depth of the lot to a maximum of 200 feet from the centerline of the road unless a different setback is provided in the Land Use Policies for the Planning Areas. Prohibit development within the setback with the following exceptions:

- New barns and similar agriculture support structures added to existing farm complexes on parcels in the Diverse Agriculture, Land Extensive Agriculture, Land Intensive Agriculture, and Resources and Rural Development land use categories, and on parcels in the Rural Residential land use category with Agricultural and Residential (AR) Zoning, provided that such structures proposed within a State Scenic Highway or where local design review exists by community choice in an adopted specific or area plan are subject to administrative design review.
- New barns and similar agricultural support structures that do not require a use permit in the Development Code on parcels in the Diverse Agriculture, Land Extensive Agriculture, Land Intensive Agriculture, and Resources and Rural Development land use categories, and on parcels in the Rural Residential land use category with Agriculture and Residential (AR) Zoning, provided that such structures proposed within a State Scenic Highway or where local design review exists by community choice in an adopted specific or area plan are subject to administrative design review.
- Maintenance, restoration, or minor expansion of existing structures.
- Telecommunication facilities that meet the applicable criteria established in the Development Code.
- Other new structures if they are subject to design review and
 - they are associated with existing structures,

- there is no other reasonable location for the structure,
- the location within the setback is necessary for the use, or
- existing vegetation and topography screen the use.
- Compliance with the setback would render the parcel unbuildable.
- Satellite dishes that are not visible from the roadway.

The OSRC also sets forth policies in Section 2.4, Policy for Outdoor Lighting, intended to reduce excessive and unnecessary levels of light including the following:

Policy OSRC-4a

Require that all new development projects, County projects, and signage utilize light fixtures that shield the light source so that light is cast downward and that are no more than the minimum height and power necessary to adequately light the proposed use.

Policy OSRC-4b

Prohibit continuous all night exterior lighting in rural areas, unless it is demonstrated to the decision making body that such lighting is necessary for security or operational purposes or that it is necessary for agricultural production or processing on a seasonal basis. Where lighting is necessary for the above purposes, minimize glare onto adjacent properties and into the night sky.

Policy OSRC-4c Discourage light levels that are in excess of industry and State standards.

Sonoma County Zoning Regulations

The County's Zoning Regulations contain regulations on development in scenic landscape units and along scenic corridors.

Section 26-64-020, Community Separators and Scenic Landscape Units, establishes the following provisions to development of properties in community separators and scenic landscape units:

- a. All structures, except certain telecommunications facilities as provided for in Section 26-64-040, located within community separators and scenic landscape units illustrated on Figures OS-5a through OS-5i, inclusive, of the general plan open space element and included within the SR district shall be subject to the following criteria:
 1. Structures shall be sited below exposed ridgelines;

2. Structures shall use natural landforms and existing vegetation to screen them from view from public roads. On exposed sites, screening with native, fire resistant plants may be required;
3. Cuts and fills are discouraged, and where practical, driveways are screened from public view;
4. Utilities are placed underground where economically practical;

The above criteria shall not apply to agricultural accessory structures which do not require a use permit in the district with which this district is combined.

- b. In addition to the criteria listed in subsection (a) of this section, the following standards shall apply to subdivisions within community separators and scenic landscape units and included within the SR district unless otherwise provided herein:
 1. Building envelopes shall be established for structures. Use of height limitations should be considered, if necessary to further mitigate visual impacts;
 2. Clustering shall be used to reduce visual impact where consistent with the applicable base district;
 3. Building sites and roadways shall be located to preserve trees and tree stands as provided in Section 26-88-040(m) of this chapter;
 4. To the extent allowed by law, dedication of a permanent scenic or agricultural easement shall be required at the time of subdivision for projects in community separators. Consider requiring such easements in critical scenic landscape units pursuant to general plan Policy OS-2g.

Section 26-64-030, Scenic Corridors, establishes the following provisions to development of properties along Scenic Corridors:

- a. All structures located within scenic corridors established outside of the urban service area boundaries shown on Figures LU-5a through LU-5i, inclusive, of the general plan land use element shall be subject to the setbacks of thirty percent (30%) of the depth of the lot to a maximum of two hundred feet (200') from the centerline of the road. Development within the setback shall be prohibited with the following exceptions, where such uses are allowed by the base district with which this district is combined:
 1. New barns and similar agricultural support structures which are added to existing farm complexes provided that such structures proposed within a state scenic highway or where local design review exists by community choice in an adopted specific or area plan are subject to design review;

2. New barns and similar agricultural support structures which do not require a use permit in this chapter; provided, however, that such structures proposed within a State Scenic Highway or where local design review exists by community choice in an adopted specific or area plan are subject to design review;
3. Maintenance, restoration, reconstruction or minor expansion of existing structures;
4. Certain telecommunication facilities as provided in Section 26-64-040;
5. Other new structures provided they are subject to design review and
 - i. They are associated with existing structures,
 - ii. There is no other reasonable location for the structure,
 - iii. The location within the setback is necessary for the use, or
 - iv. Existing vegetation and topography screen the use;
6. Compliance with the setback would render the parcel unbuildable;
7. Satellite dishes which are not visible from the roadway.

Bennett Valley Area Plan

The *Bennett Valley Area Plan* contains policies and provisions consistent with the *Sonoma County General Plan 2020* to regulate development within the Bennett Valley Area. The following policies from Section E - To Maintain Visual Amenity, are relevant to the proposed project:

1. Avoid skyline development.
2. Site and design structures in harmony with natural surroundings
3. Prohibit structures in visual/scenic corridors as mapped on the Critical Open Space Plan.
4. Prohibit structures in visual corridors as mapped on the Critical Open Space Plan.
5. Apply the Bennett Valley Design Guidelines

The following policies from the *Bennett Valley Area Plan Design Standards* (County of Sonoma 2011) are relevant to the proposed project:

2. Structures shall blend with the existing landscape and vegetation to the maximum feasible extent. Therefore, minimum setbacks shall be consistent with the Sonoma County Subdivision Ordinance, the General Plan, or where applicable, with the adopted Bennett Valley Area Plan, whichever is more restrictive. No new structure shall be sited within visual/scenic corridors, riparian corridors or unique

biotic resource areas as designated on the Critical Open Space Plan Map of the Bennett Valley Area Plan, where applicable, except in the visual/scenic corridor where the entire parcel is included within such designation or except in the visual/scenic corridor where said structure is a fence or agricultural appurtenance. Where the entire parcel is included in a visual/scenic corridor area, or where said structure is an agricultural appurtenance greater than 200 sq. ft., the Bennett Valley/North Sonoma Mountain Design Review Committee shall condition the approval of such structure(s) to mitigate adverse effects to the open space resource. In considering mitigation measures on agricultural appurtenances, the Design Review Committee will give priority to the needs of productive agriculture. A fence or agricultural appurtenance less than 200 square feet is permitted without design review

5. All new structures shall be sited so that they harmonize with the natural surroundings, including but not limited to topography and vegetation; specifically
 - a. Roof lines shall follow established lines of land and/or tree forms;
 - b. Existing vegetation and landforms shall be utilized to screen structures from public view.
7. Structures shall utilize color, texture and materials that blend harmoniously with surrounding landscape. The following are recommended for harmonious development:
 - a. Materials: natural wood siding or shingles and natural stone for exteriors;
 - b. Colors: earth tone;
 - c. Roofing: fire resistant but dark toned if visible;
 - d. Roofline: considered in relationship to the total composition of structure with landscape.
8. Utilities shall be placed underground from source point, unless masked by existing vegetation.
9. Project outdoor lighting shall comply with the outdoor lighting policies of the General Plan Open Space and Resource Conservation Element.

Lastly, the Bennett Valley Area Plan Open Space map illustrates that the visual corridor designation applied to Sonoma Mountain Road extends to the project site and that the project site and surroundings areas are located within the Bennett Valley Scenic Landscape Unit.

Sonoma County Permit and Resource Management Department Visual Assessment Guidelines

In addition to establishing site sensitivity characteristics and criteria (see Table 3.2-1 above), the County's Visual Assessment Guidelines establish criteria for determining the visual dominance of a development. The guidelines also provide a significance rubric that provides direction regarding the significance of visual impacts through a comparison of site sensitivity with the visual dominance of a development project (County of Sonoma n.d.). Table 3.2-2 lists the County's Visual Assessment Guidelines criteria for visual dominance, and Table 3.2-3 shows the County's Thresholds of Significance for Visual Impacts.

**Table 3.2-2
Visual Assessment Guidelines Criteria for Visual Dominance**

Dominance	Characteristics
Dominant	Project elements are strong – they stand out against the setting and attract attention away from the surrounding landscape. Form, line, color, texture, and night lighting contrast with existing elements in the surrounding landscape.
Co-Dominant	Project elements are moderate – they can be prominent within the setting, but attract attention equally with other landscape features. Form, line, color, texture, and night lighting are compatible with their surroundings.
Subordinate	Project is minimally visible from public view. Element contrasts are weak – they can be seen but do not attract attention. Project generally repeats form, line, color, texture, and night lighting of its surroundings.
Inevident	Project is generally not visible from public view because of intervening natural land forms or vegetation.

**Table 3.2-3
Thresholds of Significance for Visual Impact Analysis**

Sensitivity	Visual Dominance			
	<i>Dominant</i>	<i>Co-Dominant</i>	<i>Subordinate</i>	<i>Inevident</i>
Maximum	Significant	Significant	Significant	Less than significant
High	Significant	Significant	Less than significant	Less than significant
Moderate	Significant	Less than significant	Less than significant	Less than significant
Low	Less than significant	Less than significant	Less than significant	Less than significant

3.2.4 Impacts and Mitigation Measures

3.2.4.1 Significance Criteria

The significance criteria for this aesthetic impact analysis are adapted from the California Environmental Quality Act Guidelines, Appendix G. Based on the guidelines, aesthetic impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Create a substantial adverse effect on a scenic vista;

2. Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway;
3. Substantially degrade the existing visual character or quality of the site and its surroundings; or
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.2.4.2 Impact Discussion

Impact AES-1: The project would not have a substantial adverse effect on a scenic vista. This would result in a less-than-significant impact.

The project site is visible from two scenic vistas in the adjacent North Sonoma Mountain Regional Park and Open Space Preserve: the Bennett Valley Overlook and the Umbrella Tree Trail Overlook. The Bennett Valley Overlook (Viewpoint 4) and the Umbrella Tree Trail Overlook (Viewpoint 5) were identified as key viewpoints from which to assess the visual change associated with the proposed project. Visual simulations of the proposed project were prepared from the overlooks (please refer to the Viewpoint 4 and Viewpoint 5 discussion under Impact AES-3, below, for additional detail).

From the Bennett Valley Overlook, proposed structures and roads on the project site would be located on the valley floor approximately 0.8 mile to the northwest, and these elements would be visible to trail-based recreationists. As the Bennett Valley Overlook is located some 780 feet greater in elevation than the primary development area on the project site, proposed structures including the tasting room and winery buildings (both of which would measure less than 35 feet in height as measured from adjacent ground to the top of roof architectural features) would not substantially obstruct the existing long and broad views available from the overlook. Similarly, elements of the proposed project would be visible from the Umbrella Tree Trail Overlook yet due to proposed scale of new development and use of building materials that would help structures blend in with the existing landscape, new structures would not substantially obstruct existing views.

According to the building elevations prepared for the project by Wade Design Architects (Wade Design Architects 2015) new structures would display a rural aesthetic and design that would incorporate dark green colored corrugated metal roofs, wood framed awnings, and vertical stained wood board exteriors. New landscaping is proposed and similar to existing conditions, proposed landscape areas would primarily consist of trees and shrubs and would be located where existing tree and shrub clusters are planted on site and east of the main residence. In addition to the use of dark green corrugated metal roofs, the incorporation of wood elements (i.e., wood framed awnings and wood board exteriors) on new structures and the installation of

new trees and shrubs where trees and shrubs are currently located on the property would help the project to comply with the *Bennett Valley Area Plan* Design Standards recommendations to “blend with the existing landscape and vegetation to the maximum feasible extent” (Sonoma County 2011). As such, implementation of the proposed project would result in less than significant impacts on existing views available from the Bennett Valley Overlook and the Umbrella Tree Trail Overlook.

Mitigation

No mitigation measures are required.

Impact AES-2: The project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. This would result in no impact.

Two highways in Sonoma County are designated as state scenic highways, SR-116 from SR-1 east and south to the Sebastopol city limits and SR-12 from Danielli Avenue east of Santa Rosa to London Way near Aqua Caliente (Caltrans 2016). SR-116 is located approximately 13 miles northwest of the project site, and SR-12 is located approximately 5 miles east of the project site. Due to the distance between these scenic highways and the project site and due to the presence of intervening landforms and development, the project site is not visible from an officially designated state scenic highway. As such, development of the proposed project would have no impact on scenic resources within a state scenic highway.

Mitigation

No mitigation measures are required.

Impact AES-3: The project would not substantially degrade the existing visual character or quality of the site and its surroundings. This would result in a less than significant impact.

As stated above, five public viewpoints were selected from which to evaluate the potential aesthetics impacts of the proposed project. An evaluation of potential aesthetic impacts at each of the identified viewpoints is provided below.

Viewpoint 1 – Sonoma Mountain Road

The existing and proposed view of the project site from Viewpoint 1, Sonoma Mountain Road, is depicted on Figure 3.2-2. As shown in the visual simulation, road improvements including installation of a Class II permeable aggregate (anticipated to display a greyish color) main driveway and new winery road would be visible in the foreground viewing distance and would replace the tan colored soils and straight line displayed by the existing driveway. Due to the

presence of large, mature cypress trees installed along the Belden Barns driveway, the majority of the project site is screened from view at Viewpoint 1. Despite the presence of large, mature trees, the northern elevation of the new agricultural employee residence structure and the new winery building would be visible briefly to passers-by through a narrow gap in vegetation near the project driveway. As viewed from Viewpoint 1, the angular rooflines of the structures would mimic the lines displayed by the existing barn (i.e., Building 4) and the proposed dark green color of corrugated metal roofs would help the structure blend into the dark green foliage of landscaping in the surrounding area. In addition, following construction, the new structures would be further screened by oak trees to be installed along the proposed winery road (see Figure 3.2-2). As the landscape trees mature, their spread and height would increase, and the northern elevation of the agricultural employee residence and winery building would be further obscured from the view of passers-by on Sonoma Mountain Road. Therefore, because visible project elements would display relatively weak line and color contrasts and visible project structures would be limited to partial elevations of the agricultural employee residence and winery building, the project would be visually subordinate to existing co-dominant elements (primarily vegetation and background terrain) in the Viewpoint 1 landscape.

Though the project as proposed would be visually subordinate, conditions of approval will require that the buildings be screened from view from public roadways and adjoining properties in conformance with the Bennett Valley Design guidelines. Additional trees and shrubs shall be planted on the project parcel along Sonoma Mountain Road and project driveway to more completely screen the new buildings from the road. The roadside plantings shall be reviewed by the transportation consultant to ensure that sight distances at the driveway are not impaired by the new vegetation. These plans must be approved by the planner, the transportation consultant, and the Design Review Committee.

The project proposes trimming or removal of vegetation in the right-of-way on Sonoma Mountain Road to provide sight distance for vehicles using and approaching the project driveway, consistent with the recommendations of the traffic analysis. Based on review by County Department of Transportation and Public Works and Permit Resource and Management Department staff, the required trimming or removal is expected to be limited to select trees and low growing vegetation along the roadway. Remaining vegetation behind the vegetation to be removed would continue to screen project elements, and the vegetation trimming or removal would not substantially alter views along Sonoma Mountain Road.

Viewpoint 2 – North Sonoma Mountain Regional Park and Open Space Preserve

The existing and proposed view of the project site from Viewpoint 2 is depicted on Figure 3.2-3. As shown on the figure, the project would be minimally visible and well screened from view of recreationalists on lower elevation segments of the North Sonoma Mountain Ridge Trail by

existing tall and spreading oak trees located to the north and northwest within the regional park. As shown on Figure 3.2-3, a portion of the south elevation of the proposed hospitality building would be visible through a narrow viewing window to the north and would display an angular form and light tan color. While the wooden exterior of the hospitality building would contrast with the light to dark green foliage of oaks in the foreground, the structure would not be visually prominent and would display color similar to tans of foreground soils and middle-ground crops/terrain. Although the new hospitality building would be more visible to recreationists at Viewpoint 2 than the existing large barn on the project site (i.e., Building 5), the hospitality building would display similar angular lines, seemingly smooth textures, and a comparable scale to the existing structure. Furthermore, due to the presence of intervening oak trees and the relatively low vertical profile of the new structure in the landscape, the hospitality building would not be visually prominent. Therefore, because the project would be minimally visible from public view at Viewpoint 2 and overall element contrast would be weak, the project would be visually subordinate in the Viewpoint 2 landscape.

Viewpoint 3 – North Sonoma Mountain Regional Park and Open Space Preserve

The existing and proposed view of the project site from Viewpoint 3 is depicted on Figure 3.2-4. In addition to the roof of the proposed hospitality building, the south elevation and roof of the new winery building would be the primary project elements visible from higher elevation segments of the North Sonoma Mountain Ridge Trail. Compared to the existing large, pitched green-roof barn (i.e., Building 5) located on site and visible from Viewpoint 3, the south elevation of the new winery building would display a brighter tan color on the south elevation. However, the overall color contrast would be weak due to the presence of similarly colored grasslands in the foreground and crops in the middle-ground distance. Furthermore and based on the elevated vantage point and long, broad views offered to recreationalists at Viewpoint 3, the new winery building would not be visually prominent, and the apparent scale of the structure would be comparable to that of existing residences located within the middle-ground distance of the visible landscape. Given the expansiveness of the existing view and the inclusion of harmonious exterior colors that would assist project structures to blend in with existing features in the landscape, the proposed project would be visually subordinate when viewed from Viewpoint 3.

Viewpoint 4 – North Sonoma Mountain Regional Park and Open Space Preserve

Existing and proposed views of the project site from Viewpoint 4 are depicted on Figure 3.2-5. As shown on the figure, the proposed winery building, hospitality building, and agricultural employee residence would be visible on the valley floor from the Bennett Valley Overlook. As shown on Figure 3.2-5 project elements including the proposed winery building, hospitality building, farm worker residence, and new site roadways would be visible on the valley floor

approximately 0.80 mile away but these features would not be visually prominent. Due to the elevated nature of Viewpoint 4 and the expansiveness of the existing view, the existing terrain would continue to be the dominant visual feature in the landscape. And similar to the other visible development on the valley floor, proposed project structures would be visually subordinate to the existing terrain and would not attract strong attention from trail-based recreationists. In addition, the green corrugated metal roofs atop proposed project buildings would help these structures to visually blend in with existing mature trees located adjacent to the eastern project property boundary and on site along the primary driveway. As such, the proposed project would be visually subordinate when viewed from Viewpoint 4.

Viewpoint 5 – North Sonoma Mountain Regional Park and Open Space Preserve

The existing and proposed view of the project site from Viewpoint 5 is depicted on Figure 3.2-6. As stated in Section 3.2.2, Viewpoint 5 is situated at the Umbrella Tree Trail overlook which is located at a superior (i.e., higher in elevation) position in relation to the project site and surrounding area. Viewpoint 5 is oriented to the north and available views extend to rugged mountains in the background distance. From the overlook, the green colored corrugated metal roofs atop the proposed structures would be the most noticeable project elements, yet these features would display relatively weak color contrast in the landscape due to the presence of light to dark green foliage associated with existing croplands and mature trees on and adjacent to the project site. Also, portions of the south elevation of the winery building and the hospitality building would be screened from view by the mounded terrain located to the immediate south of the new structures. Furthermore, the apparent scale of new structures on the project site would be reduced due to distance between Viewpoint 5 and the proposed new development and the elevated vantage point offered at the Umbrella Tree Trail overlook. Similar to views at Viewpoint 4, the expansiveness of the existing view at the overlook and the inclusion of harmonious exterior colors that would assist project structures to blend in with existing features in the landscape would result in the proposed project being visually subordinate when viewed from Viewpoint 5.

Bennett Valley Visual Corridor

The General Plan designates the project area as visually sensitive. Sonoma Mountain Road is a County-designated Scenic Corridor, and current development on the project site is located within the Bennett Valley Visual Corridor, which is established in the *Bennett Valley Area Plan*. The Bennett Valley Visual Corridor covers most of the parcel with the exception of the southeastern portion, and generally prohibits new development within the corridor. However, this mitigation measure in the plan is applied contextually, as the *Bennett Valley Area Plan* states: “Review of any proposed development should consider each of the standards described below. Each standard should be applied to the maximum extent feasible, recognizing that in some cases when applied

to a particular project these standards may be contradictory. General Plan policies shall apply where the development guidelines conflict with the General Plan. The Design Review Committee should consider the total impact of the project in determining the extent to which each standard should be applied.” The Bennett Valley Visual Corridor was established to minimize visual impacts to public views and private views and is intended to be used as a tool to help accomplish this goal. It is not definitive for the purposes of on-the-ground evaluation of aesthetic impacts as it was established through a “windshield survey” and not through actual on the ground plotting. In this case, as explained above, visual analysis confirms that there are no significant impacts. The additional structures will be largely screened from the road, and the view from the road will be substantially unchanged. As vegetation matures, structures are likely to be less visible than they are currently. In addition, in this case, strict adherence to the Bennett Valley Visual Corridor’s prohibition on structures in the corridor could defeat the policy purpose of the corridor, as areas outside of the visual corridor are primarily at a higher elevation and would create more of a negative visual impact than integrating new structures within the existing and largely screened farm complex.

Conclusion

The visual impacts of the proposed project were evaluated from five public viewpoints which are described in detail above. These viewpoints were used to determine the visual dominance of the project based on the criterion in the County Permit and Resource Management Department’s Visual Assessment Guidelines. The project development would be minimally visible (see Figures 3.2-3 and 3.2-4) from Viewpoints 2 and 3, not overly discernable from Viewpoints 4 and 5, and would be visually subordinate to existing terrain and vegetation at Viewpoint 1. As discussed earlier, the project has a high visual sensitivity designation.

The proposal for the new winery building design would take advantage of natural earth screening provided by the existing trees and terrain. Furthermore, required review and approval of the conceptual landscape plan and full set of architectural plans by the Design Review Committee would ensure that the project complies with the Design Review Committee’s recommendations regarding the selection of building materials that are harmonious with natural landscaping and existing structures and screening of the proposed development with appropriate native vegetation. According to Table 3.2-2 and as described earlier for Viewpoints 1 through 5, the project site’s visual dominance would be classified as subordinate. Table 3.2-3 shows the Thresholds of Significance for Visual Impacts as outlined in the Visual Assessment Guidelines. According to the thresholds, a visually subordinate project located on a site with high visual sensitivity would result in less-than-significant visual impacts (County of Sonoma n.d.).

Mitigation

No mitigation is required.

Impact AES-4: The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This would be a significant impact.

New structures proposed on the project site would introduce new sources of light and glare. Lighting would be installed in the interior and on the exterior of new facilities (at the outdoor dining area proposed at the hospitality building) for general illumination, safety, and security. Additional sources of new lighting would also include lights for new parking areas and temporary lighting associated with a limited number of agricultural promotional events during the year. If not properly designed, new sources of lighting may affect existing nighttime views in the area. The primary source of new glare associated with the proposed project would consist of corrugated metal roofs proposed atop new on-site structures; however, as demonstrated in the visual simulations prepared for Viewpoints 1 through 5, the roofs would be colored green and will be limited to a Solar Reflectance Index (SRI) of 30. Based on practical field experience, the County determined that metal roofs with an SRI of 30 or less generate minimal glare and are most capable of blending into the natural environment. Therefore, with the application of color and restriction on reflectivity to proposed building roofs, new structures are not anticipated to generate excessive glare that would be received at off-site public viewing locations.

The addition of new sources of lighting that could negatively impact nighttime views would constitute a potentially significant impact. Therefore, Mitigation Measure AES-1 has been included and is designed to reduce the impact of new light sources to a less-than-significant level.

Mitigation

MM-AES-1 Prior to issuance of the Building Permit, an exterior lighting plan shall be prepared and submitted by the applicant to the Design Review Committee for review and approval. All exterior lighting shall be fully shielded and directed downward to prevent light trespass onto adjacent properties. Generally, light fixtures should accept sodium vapor lamps and shall not be located at the periphery of the property. The installation of flood lights shall not be allowed. Lighting shall be installed in accordance with the approved lighting plan and shall be reviewed on site by the Permit and Resource Management Department prior to issuance of certificate of occupancy.

Significance of Impact After Mitigation

Implementation of MM-AES-1 would reduce potential impacts to existing nighttime views to a **less-than-significant level**.

3.2.4.3 Cumulative Impacts

Impact AES-5: The project would not contribute to cumulative impacts with respect to aesthetics. This would be a less-than-significant impact.

The effects of the proposed project, when considered with other projects in the region, would not result in a cumulative impact to aesthetics. The proposed project is partially screened from view at public viewpoints in the surrounding area including Sonoma Mountain Road and where visible from off-site public viewpoints including from trails within the North Sonoma Mountain Regional Park and Open Space Preserve, buildings would either be partially screened or proposed project structures/elements would not be overly discernable in the landscape. Furthermore, to ensure consistency with the *Bennett Valley Area Plan* Design Standards, the proposed project has incorporated exterior colors into project design that would assist building exteriors and roofs to visually blend in with existing features in the landscape to the maximum extent practicable. Cumulative development proposed in the project area would also be required to demonstrate compliance with the *Bennett Valley Area Plan* Design Standards and incorporate design measures that would ensure visual harmony with the natural surroundings, including but not limited to topography and vegetation.

Mitigation

No mitigation is required.

3.2.5 References

Caltrans (California Department of Transportation). 2016. “California Scenic Highways: Sonoma County.” http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/sonoma.htm. Accessed January 14, 2016.

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County of Sonoma. 2008. *Sonoma County General Plan 2020*. Adopted September 23, 2008. Amended 2014.

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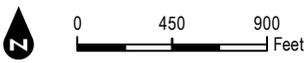
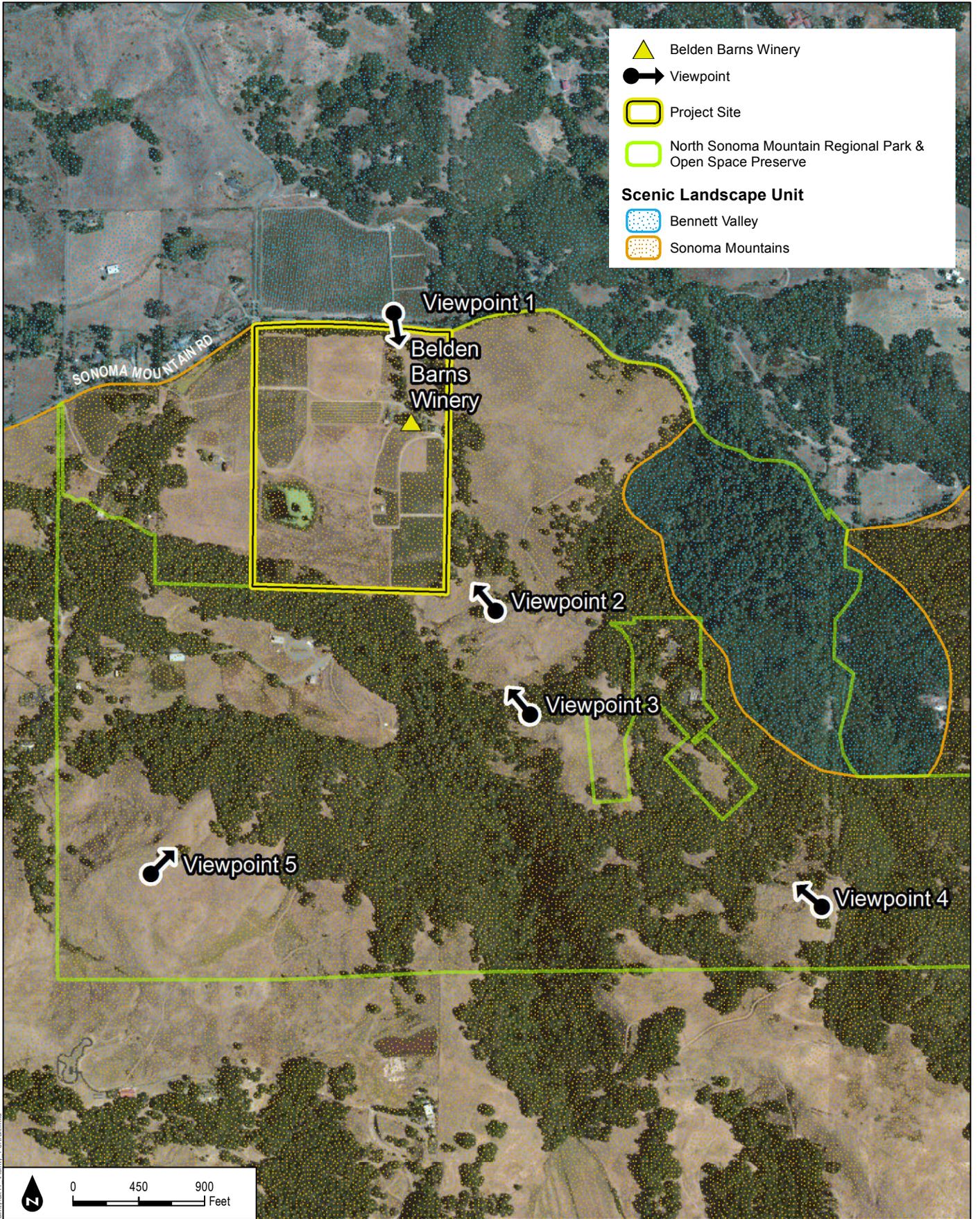
Giblin Associates. 2002. *Memorandum: Summary of Observations and Conclusions – Bachmann Residence (5560 Sonoma Mountain Road)*. May 13, 2002. Revised July 11, 2002.

Tom Origer & Associates. 2012. *Historic Evaluation of the Belden Barns Complex, 5561 Sonoma Mountain Road, Santa Rosa, Sonoma County, California*. March 6, 2012.

-  Belden Barns Winery
-  Viewpoint
-  Project Site
-  North Sonoma Mountain Regional Park & Open Space Preserve

Scenic Landscape Unit

-  Bennett Valley
-  Sonoma Mountains



SOURCE: Bing Maps 2016; County of Sonoma 2016

DUDEK

Belden Barns Farmstead & Winery Draft EIR

**FIGURE 3.2-1
Viewpoint Locations**

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Existing View from Sonoma Mountain Road south towards Project Site



Proposed View

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Existing View from North Sonoma Mountain Ridge Trail northwest towards Project Site



Proposed View

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Existing View from North Sonoma Mountain Ridge Trail northwest towards Project Site



Proposed View

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Existing View from Bennett Valley Overlook northwest towards Project Site



Proposed View

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Existing View from Umbrella Tree Trail Overlook northeast towards Project Site



Proposed View

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3.3 AIR QUALITY

This section includes a description of existing air quality conditions, a summary of applicable regulations, and analyses of potential short-term and long-term air quality impacts, and identifies mitigation measures related to implementation of the proposed project.

3.3.1 Environmental Setting

Topography, Climate, and Meteorology

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

The project site is located in southern Sonoma County, within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara Counties, and the southern portions of Solano and Sonoma Counties. The climate of the SFBAAB is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as nitrates and sulfates.

The SFBAAB subregion that stretches from Santa Rosa to the San Pablo Bay is considered two different valleys: the Cotati Valley in the north and the Petaluma Valley in the south. Specific topographic and climatological conditions for these valleys are described in the Bay Area Air Quality Management District (BAAQMD) *California Environmental Quality Act Air Quality Guidelines* (BAAQMD 2012a). To the east, these valleys are bordered by the Sonoma Mountains, while to the west is a series of low hills, followed by the Estero Lowlands, which open to the Pacific Ocean. The region from the Estero Lowlands to the San Pablo Bay is known as the Petaluma Gap. Wind patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap, with winds flowing predominantly from the west. As marine air travels through the Petaluma Gap, it splits into northward and southward paths moving into the Cotati and Petaluma Valleys. The southward path crosses San Pablo Bay and moves eastward through the Carquinez Strait. The northward path contributes to Santa Rosa's prevailing winds from the south and southeast. Petaluma's prevailing winds are from the northwest. Average annual wind

speeds at the Petaluma Airport and in Santa Rosa are 7 miles per hour (mph) and 5 mph, respectively. The project site is located on the eastern edge of the Cotati and Petaluma Valleys climatological subregion.

Air temperatures are very similar in the two valleys. Summer maximum temperatures are in the low-to-mid-80s (°Fahrenheit), while winter maximum temperatures are in the high-50s to low-60s. Summer minimum temperatures are around 50°F, and winter minimum temperatures are in the high 30s (BAAQMD 2012a).

Criteria Air Pollutants and Ambient Air Quality Standards

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive people from illness or discomfort. Pollutants of concern include ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}), and lead (Pb). These pollutants are discussed in the following paragraphs.¹ In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O₃ is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases (ROG), and oxides of nitrogen (NO_x) react in the presence of ultraviolet sunlight. O₃ is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_x, the precursors of O₃, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O₃ formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O₃ at high levels can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. Most NO₂, like O₃, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO₂ are collectively referred to as NO_x and are major contributors to O₃ formation. High concentrations of NO₂ can cause breathing difficulties and result in a brownish-red cast to the

¹ The descriptions of health effects for each of the criteria air pollutants associated with proposed project construction and operation are based on the U.S. Environmental Protection Agency's (EPA's) "Six Common Air Pollutants" (EPA 2015a) and the California Air Resources Board's (CARB's) "Glossary of Air Pollution Terms" (CARB 2015).

atmosphere, causing reduced visibility. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO₂ is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. The main sources of SO₂ are coal and oil used in power plants and industries; as such, the highest levels of SO₂ are generally found near large industrial complexes. In recent years, SO₂ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO₂ and limits placed on the sulfur content of fuels. SO₂ is an irritant gas that attacks the throat and lungs, and can cause acute respiratory symptoms and diminished ventilator function in children. SO₂ can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM_{2.5} and PM₁₀ represent fractions of particulate matter. Fine particulate matter, or PM_{2.5}, is roughly 1/28 the diameter of a human hair. PM_{2.5} results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and woodstoves. In addition, PM_{2.5} can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs. Inhalable or coarse particulate matter, or PM₁₀, is about 1/7 the thickness of a human hair. Major sources of PM₁₀ include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

PM_{2.5} and PM₁₀ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{2.5} and PM₁₀ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM₁₀ tends to collect in the upper portion of the respiratory system, PM_{2.5} is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, and produce haze and reduce regional visibility.

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth.

Attainment Status and Ambient Air Quality

An area is designated as “in attainment” when it is in compliance with the federal and/or state standards. These standards are set by the U.S. Environmental Protection Agency (EPA) or California Air Resources Board (CARB) for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare with a margin of safety.

The criteria pollutants of primary concern considered in this air quality assessment include O₃, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and lead. Although there are no ambient air quality standards for ROG or NO_x, they are important because they are precursors to O₃. The attainment classifications for the criteria pollutants are outlined in Table 3.3-1, San Francisco Bay Area Air Basin Attainment Classification.

In summary, the SFBAAB is designated as a nonattainment area for both federal and state O₃ and PM_{2.5} standards. The SFBAAB is also designated as a nonattainment area for the state PM₁₀ standard. The Sonoma County portion of the SFBAAB is designated “unclassified” or “attainment” for all other criteria air pollutants. Notably, “unclassified” areas cannot be classified, based on available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Table 3.3-1
San Francisco Bay Area Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
<i>Federal Standards</i>		
O ₃	8 hours	Nonattainment/Marginal
NO ₂	1 hour	Unclassifiable/attainment
	Annual Arithmetic Mean	Attainment
CO	1 hour; 8 hours	Unclassifiable/attainment
SO ₂	24 hours; Annual Arithmetic Mean	Attainment
PM ₁₀	24 hours	Unclassifiable/attainment
PM _{2.5}	24 hours	Nonattainment/Moderate ^a
	Annual Arithmetic Mean	Unclassifiable/attainment
Pb	Quarter	Unclassifiable/attainment
	3-month average	Attainment
<i>State Standards</i>		
O ₃	1 hour; 8 hours	Nonattainment
NO ₂	1 hour; Annual Arithmetic Mean	Attainment
CO	1 hour; 8 hours	Attainment
SO ₂	1 hour; 24 hours	Attainment
PM ₁₀	24 hours; Annual Arithmetic Mean	Nonattainment
PM _{2.5}	Annual Arithmetic Mean	Nonattainment
Pb ^b	30-day average	Attainment
Sulfates (SO ₄)	24 hours	Attainment
Hydrogen sulfide (H ₂ S)	1 hour	Unclassified
Vinyl chloride ^b	24 hours	Unclassified
Visibility-reducing particles	8 hours (10:00 a.m.–6:00 p.m.)	Unclassified

Sources: CARB 2014a; EPA 2015b.

Notes: O₃ = ozone; NO₂ = nitrogen dioxide; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter; Pb = lead.

^a On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour PM_{2.5} national standard. This EPA rule suspends key State Implementation Plan (SIP) requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as “nonattainment” for the national 24-hour PM_{2.5} standard until such time as the BAAQMD submits a “redesignation request” and a “maintenance plan” to EPA, and EPA approves the proposed redesignation.

^b CARB has identified lead and vinyl chloride as toxic air contaminants (TACs) with no threshold level of exposure for adverse health effects determined.

The nearest monitoring station that CARB and the BAAQMD operated was located at 837 5th Street, Santa Rosa, approximately 8 miles northwest of the proposed project. However, since this

station is now closed and did not monitor for PM₁₀, reported values were also taken from the Sebastopol–Morris Street monitoring station and from the Healdsburg–Matheson Street monitoring station, located approximately 12 and 22 miles from the project site, respectively. The data collected at these stations are considered representative of the air quality experienced in the proposed project’s vicinity and is provided in Table 3.3-2, Ambient Air Quality Data.

**Table 3.3-2
Ambient Air Quality Data**

Pollutant	Averaging Time	2012	2013	2014	Most Stringent Ambient Air Quality Standard	Monitoring Station
O ₃	1 hour	0.064 ppm	0.074 ppm	N/A	0.09 ppm (State)	Santa Rosa ^a
	State exceedances	6	1	N/A	—	
	8 hours	0.051 ppm	0.064 ppm	N/A	0.070 ppm (State/National)	
	Federal exceedances	20	11	N/A	—	
	State exceedances	50	21	N/A	—	
PM ₁₀	24 hours	38.0 µg/m ³	55.0 µg/m ³	45.6 µg/m ³	50 µg/m ³ (State)	Healdsburg–Matheson ^b
	Federal exceedances	N/A	0	0	—	
	State exceedances	N/A	N/A	0	—	
	Annual	N/A	N/A	14.4 µg/m ³	20 µg/m ³ (State)	
PM _{2.5}	24 hours	N/A	N/A	26.2 µg/m ³	35 µg/m ³ (National)	Sebastopol ^c
	Federal exceedances	N/A	N/A	0	—	
	Annual	N/A	N/A	7.7 µg/m ³	12 µg/m ³ (National)	
NO ₂	1 hour	0.043 ppm	0.040 ppm	N/A	0.100 ppm (National)	Santa Rosa ^a
	Annual	0.008 ppm	0.008 ppm	N/A	0.03 ppm (National)	
CO	1 hour	2.2 ppm	1.8 ppm	1.4 ppm	20 ppm (State)	Santa Rosa ^a
	8 hours	1.5 ppm	1.2 ppm	0.9 ppm	9.0 ppm (State)	
SO ₂	1 hour	N/A	N/A	N/A	0.075 ppm (State)	N/A
	24 hours	N/A	N/A	N/A	0.04 ppm (State)	

Sources: CARB 2014b; EPA 2015c.

Notes: ppm = parts per million; O₃ = ozone; PM₁₀ = coarse particulate matter; µg/m³ = micrograms per cubic meter; PM_{2.5} = fine particulate matter; NO₂ = nitrogen dioxide; N/A = not available; CO = carbon monoxide; SO₂ = sulfur dioxide.

Data were taken from CARB iADAM (2015; <http://www.arb.ca.gov/adam>) or EPA AirData (2015; <http://www.epa.gov/airdata/>) and represent the highest concentrations experienced over a given year. Exceedances of federal and state standards are only shown for ozone and particulate matter. Daily exceedances for particulate matter are estimated days because PM₁₀ and PM_{2.5} are not monitored daily. All other criteria pollutants did not exceed either federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM₁₀, or 24-hour SO₂, nor is there a state 24-hour standard for PM_{2.5}.

^a Santa Rosa Monitoring Station is located at 837 5th Street, Santa Rosa, California.

^b Sebastopol Monitoring Station is located at 103 Morris Street, Suite T, Sebastopol, California.

^c Healdsburg–Matheson Monitoring Station is located at 133 Matheson Street, Healdsburg, California.

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC) by CARB and as a hazardous air pollutant (HAP) by the EPA. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC.

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos is also a TAC of concern due to the demolition of buildings and structures as part of the project. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its use as a building material. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.²

In addition to monitoring criteria pollutants, both BAAQMD and the CARB operate TAC monitoring networks in the Bay Area. The BAAQMD provides two public source inventories of TAC emissions sources within its jurisdiction. The first is its TAC Annual Report, the latest of which was published in 2009. The most recent source is BAAQMD's May 2012 Google Earth-

² In general, a health risk assessment is required if BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk, then the applicant is subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

based inventory of stationary source risks and hazards. This latter source indicates that there are no existing sources of TACs within 1,000 feet of the project site boundary (BAAQMD 2012b).

Odor Emissions

As described by the BAAQMD in its revised *California Environmental Quality Act Air Quality Guidelines* (BAAQMD 2010a; BAAQMD CEQA Guidelines), odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Odor impacts should be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts.

The BAAQMD 2010 Guidelines identify land uses with project screening distances including wastewater treatment plants, composting facilities, oil refineries, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations, and metal smelters. Land uses in the surrounding area include agriculture, rural residential and low-density residences. There are no land uses in the project vicinity that would be considered a substantial source of odors.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered sensitive receptors include residences, schools, day care centers, playgrounds, and medical facilities. For analysis purposes, sensitive receptors in the project area include eight residences within 1.5 miles of the project site. These residences and their location to the project are depicted in Table 3.3-7 below in the Impact Analysis.

3.3.2 Regulatory Framework

Regulatory oversight for air quality in the SFBAAB is maintained by the EPA at the federal level, CARB at the state level, and by the BAAQMD at the local level. Applicable laws, regulations, and standards of these three agencies are described in the following subsections.

Federal

Criteria Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O₃ protection, and enforcement provisions. NAAQS are established for criteria pollutants under the CAA, which are O₃, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O₃, NO₂, SO₂, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O₃, NO₂, SO₂, PM₁₀, and PM_{2.5} are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAA requires the EPA to reassess NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. Current NAAQS are depicted in Table 3.3-3, Ambient Air Quality Standards.

States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated time frames can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Hazardous Air Pollutants

The 1977 federal Clean Air Act Amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

**Table 3.3-3
Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards ^a	National Standards ^b	
		Concentration ^c	Primary ^{c,d}	Secondary ^{c,e}
O ₃	1 hour	0.09 ppm (180 µg/m ³)	—	Same as Primary Standard ^f
	8 hours	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³) ^f	
NO ₂ ^g	1 hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	
CO	1 hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	None
	8 hours	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	
SO ₂ ^h	1 hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m ³)
	24 hours	0.04 ppm (105 µg/m ³)	0.14 ppm (for certain areas) ^g	—
	Annual	—	0.030 ppm (for certain areas) ^g	—
PM ₁₀ ⁱ	24 hours	50 µg/m ³	150 µg/m ³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m ³	—	
PM _{2.5} ⁱ	24 hours	No Separate State Standard	35 µg/m ³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
Lead ^{j,k}	30-day Average	1.5 µg/m ³	—	—
	Calendar Quarter	—	1.5 µg/m ³ (for certain areas) ^k	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m ³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m ³)	—	—
Vinyl chloride ^j	24 hours	0.01 ppm (26 µg/m ³)	—	—
Sulfates	24 hours	25 µg/m ³	—	—
Visibility reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2014b.

Notes: ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter.

^a California standards for O₃, CO, SO₂ (1-hour and 24-hour), NO₂, suspended particulate matter—PM₁₀, PM_{2.5}, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards (CAAQS) are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b National standards (other than O₃, NO₂, SO₂, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected

number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) is equal to or less than one. For $\text{PM}_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

- c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25° Celsius ($^{\circ}\text{C}$) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- f On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3 . The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm, and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.
- g To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- i On December 14, 2012, the national annual $\text{PM}_{2.5}$ primary standard was lowered from 15 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$. The existing national 24-hour $\text{PM}_{2.5}$ standards (primary and secondary) were retained at 35 $\mu\text{g}/\text{m}^3$, as was the annual secondary standard of 15 $\mu\text{g}/\text{m}^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

State

Criteria Pollutants

CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3 , CO, SO_2 (1 hour and 24 hours), NO_2 , PM_{10} , and $\text{PM}_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The CAAQS are presented in Table 3.3-3.

The CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively

granted to the CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels.

Toxic Air Contaminants

The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs.

The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions are described in greater detail below.

Despite these reduction efforts, CARB recommends that proximity to sources of diesel PM emissions be considered in the siting of new sensitive land uses. In April 2005, CARB published *Air Quality and Land Use Handbook: a Community Health Perspective*. This handbook is intended to give guidance to local governments in the siting of sensitive land uses near sources of air pollution. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities such as ports, rail yards, and distribution centers. Specifically, the document focuses on risks from emissions of diesel PM, a known carcinogen, and establishes recommended siting distances of sensitive receptors. With respect to roadways, the recommendations of the report are: “Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with more than 100,000 vehicles per day or rural roads with 50,000 vehicles/day” (CARB 2005). CARB notes that these recommendations are advisory and should

not be interpreted as defined “buffer zones,” and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, CARB’s position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level (CARB 2005).

Local

Bay Area Air Quality Management District

The BAAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SFBAAB, where the proposed project is located. The SFBAAB is designated by the California EPA as nonattainment for ozone, PM₁₀, and PM_{2.5} (refer to Table 3.3-1 above). Additionally, the SFBAAB is designated nonattainment for the federal ozone 8-hour standard and PM_{2.5} (refer to Table 3.3-1 above). The SFBAAB includes portions of Sonoma County, including the project site, and all of Napa, Contra Costa, Alameda, Santa Clara, San Mateo, San Francisco and Marin Counties.

The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the CAA and California Clean Air Act.

The BAAQMD CEQA Guidelines (BAAQMD 2010a) is an advisory document that assists lead agencies and other participants in quantifying and evaluating air quality, odor, and greenhouse gas (GHG) impacts of projects and plans proposed in the SFBAAB. In May 2010, BAAQMD updated the 1999 CEQA Guidelines with the 2010 CEQA Guidelines, which included more stringent quantitative thresholds for construction and operational-related emissions of criteria air pollutants and precursors, TACs, odors, and GHGs.

On March 5, 2012, the Alameda County Superior Court issued a finding that the BAAQMD failed to comply with CEQA when adopting the thresholds. BAAQMD rescinded and has not readopted the resolution adopting the 2010 CEQA Guidelines. Nonetheless, the litigation involving the CEQA Guidelines does not involve the issue of whether they are supported by substantial evidence. The California Supreme Court has held that the guidelines are invalid to the extent that they require analysis of the environment on the project, rather than project impacts. Keeping that limitation in mind, the County uses the 2010 CEQA Guidelines in its air impact analysis.

BAAQMD adopted the *Bay Area 2010 Clean Air Plan* (BAAQMD 2010b), in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, which sets forth a plan to reach compliance with the state’s 1-hour air quality ozone standard. The Clean Air Plan is a comprehensive strategy to reduce air pollution from stationary and mobile sources. The plan outlines strategies to reduce ozone precursors as well as particulate matter (PM), TACs, and GHG emissions to meet their goal of reducing air pollution to attain air quality standards and protect public health. Currently, the BAAQMD, the Metropolitan Transportation Commission, and Association of Bay Area Governments are working on the *2016 Clean Air Plan/Regional Climate Protection Strategy*, which is an update to the current Clean Air Plan.

BAAQMD establishes and administers a program of rules and regulations to attain and maintain state and national air quality standards. The rules and regulations that may apply to this proposed project include, but are not limited to, the following:

Regulation 6, Rule 1 – Particulate Matter. This rule limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions and opacity (BAAQMD 2007).

Regulation 8, Rule 3 – Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the ROG content in paints and paint solvents (BAAQMD 2009a).

Regulation 8, Rule 15 – Emulsified and Liquid Asphalts. This rule governs the ROG content of asphalt available for use during construction through regulating the sale and use of asphalt, and limits the ROG content in asphalt (BAAQMD 1987).

Regulation 11, Rule 2 – Asbestos Demolition, Renovation, and Manufacturing. This rule intends to limit asbestos emissions from demolition or renovation of structures and through associated disturbance of asbestos-containing material (ACM) generated or handled during these activities (BAAQMD 1998).

Sonoma County General Plan

Section 8, Air Resources, of the Open Space and Resource Conservation Element of the *Sonoma County General Plan 2020* (County of Sonoma 2008) provides objectives, policies, and programs regarding air quality, including the following:

Goal OSRC-16 Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant and property damage in accordance with the requirements of the Federal and State Clean Air Acts.

Objective OSRC-16.1	Minimize air pollution and greenhouse gas emissions.
Objective OSRC-16.2	Encourage reduced motor vehicle use as a means of reducing resultant air pollution.
Policy OSRC-16a	Require that development projects be designed to minimize air emissions. Reduce direct emissions by utilizing construction techniques that decrease the need for space heating and cooling.
Policy OSRC-16c	Refer projects to the local air quality districts for their review.
Policy OSRC-16g	Residential units shall be required to only install fireplaces, woodstoves or any other residential wood-burning devices that meet the gram-per-hour EPA or Oregon DEQ wood heater emissions limits.
Policy OSRC-16i	Ensure that any proposed new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with applicable health standards. Promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where such land uses abut one another.

3.3.3 Impacts and Mitigation Measures

3.3.3.1 Significance Criteria

This section discusses the thresholds of significance used to evaluate impacts of the project construction and operational activities.

California Environmental Quality Act Guidelines Appendix G Thresholds

Based on the California Environmental Quality Act (CEQA) Appendix G Guidelines (14 CCR 15000 et seq.), air quality impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

Appendix G advises lead agencies to rely on the CEQA significance criteria established by the local air pollution control agency (for the Bay Area, BAAQMD) to determine the significance of a project's air emissions under the Appendix G thresholds.

Consistent with Appendix G, the environmental impact report (EIR) uses the thresholds of significance adopted in the 2010 BAAQMD CEQA Guidelines (BAAQMD 2010a).³ The BAAQMD significance thresholds are summarized in Table 3.3-4. In general, the BAAQMD significance criteria pollutant (ROG, NO_x, PM₁₀, PM_{2.5}, and CO) thresholds address the first three Appendix G air quality CEQA thresholds. The BAAQMD maintains that these criteria pollutant thresholds are intended to maintain ambient air quality concentrations below state and federal standards and to prevent a cumulatively considerable contribution to regional nonattainment with ambient air quality standards. The TAC thresholds (cancer and noncancer risks) address the fourth Appendix G threshold, and the BAAQMD odors threshold addresses the fifth Appendix G threshold. For the purposes of this EIR, proposed project impacts would be considered significant and would require mitigation if they exceed the significance thresholds in Table 3.3-4.

**Table 3.3-4
Thresholds of Significance**

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀ (exhaust)	82	82	15
PM _{2.5} (exhaust)	54	54	10
PM ₁₀ /PM _{2.5} (fugitive dust)	Best Management Practices	None	

³ The BAAQMD's CEQA Guidelines and thresholds of significance, adopted in June 2010, were challenged in a lawsuit. On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court found that the adoption of the thresholds was a project under CEQA and ordered the BAAQMD to examine whether the thresholds would have a significant impact on the environment under CEQA before recommending their use. The court's decision did not call into question the technical merits of the thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. In May 2012, the BAAQMD revised the 2010 CEQA Guidelines and removed reference to significance thresholds. Although the BAAQMD cannot, at this time, recommend the 2010 adopted thresholds, the adopted 2012 CEQA Guidance allows lead agencies to reference the BAAQMD's CEQA Thresholds Options and Justification Report developed by BAAQMD staff in 2009, which outlines substantial evidence supporting the thresholds of significance (BAAQMD 2012a, BAAQMD 2009b).

**Table 3.3-4
Thresholds of Significance**

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
Local CO	None	9.0 ppm (8-hour average, 20.0 ppm (1-hour average)	
Risks and Hazards (Individual Project)	Compliance with Qualified Community Risk Reduction Plan or Increased cancer risk of > 10.0 in a million Increased noncancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase > 0.3 µg/m ³ annual average Zone of Influence: 1,000-foot radius from property line of source or receptor		
Risks and Hazards (Cumulative)	Compliance with Qualified Community Risk Reduction Plan or Cancer risk of > 100 in a million (from all local sources) Noncancer risk of > 10.0 Hazard Index (chronic, from all local sources) Ambient PM _{2.5} > 0.8 µg/m ³ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor		
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous material located near receptors or new receptors located near stored or used acutely hazardous materials considered significant	
Odors	None	Five confirmed complaints to BAAQMD per year averaged over 3 years	

Source: BAAQMD 2009b; BAAQMD 2010a

Notes: lbs/day = pounds per day; tons/year = tons per year; ppm = parts per million; µg/m³ = micrograms per cubic meter; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; CO = carbon monoxide

3.3.3.2 Impact Discussion

Impact AQ-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. This would be a less-than-significant impact.

The most recent Bay Area ozone plan prepared in response to federal air quality planning requirements is the 2001 Ozone Attainment Plan (BAAQMD 2001). The most recent state ozone plan is the *Bay Area 2010 Clean Air Plan*, adopted by the Board of Directors in September 2010 (BAAQMD 2010b), which is an update to the Bay Area 2005 Ozone Strategy (BAAQMD 2006). Projects are considered consistent with, and would not conflict with or obstruct implementation of, the local air quality management plan if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop local air quality management plans. Demographic growth forecasts for various socioeconomic categories, developed by the Metropolitan Transportation Commission, the Association of Bay Area Governments, and local and regional agencies were used to estimate future emissions in the 2001 Ozone Attainment Plan and 2010 Clean Air Plan.

The 2010 BAAQMD CEQA Guidelines recommend consideration of the following three questions to determine consistency with the relevant air quality plan:

1. Does the project support the primary goals of the air quality plan?
2. Does the project include applicable control measures from the air quality plan?
3. Does the project disrupt or hinder implementation of any Clean Air Plan control measures?

Regarding question number 1, the three primary goals of the *Bay Area 2010 Clean Air Plan* are to (1) attain air quality standards; (2) reduce population exposure to unhealthy air and protect public health in the Bay Area; and (3) reduce GHG emissions and protect the climate. The BAAQMD adopts Clean Air Plan control measures into the BAAQMD rules and regulations, which are then used to regulate sources of air pollution in the SFBAAB. Therefore, compliance with these requirements would ensure that the proposed project would not obstruct implementation of the Clean Air Plan.

As discussed in the Summary of the Initial Study Section 3.1.2.4 Land Use and Planning, the project is consistent with underlying land use designations and applicable goals and policies of the Sonoma County General Plan 2020, the Bennett Valley Area Plan, site zoning, and other applicable land use regulatory documents.

Additionally, the type and intensity of development was found to be the type of use envisioned in the Sonoma County General Plan 2020. The project was found consistent with the Sonoma County General Plan 2020 Land Intensive Agriculture designation and General Plan policies by the Board of Zoning Adjustments. The project would conform to the County's Land Intensive Agriculture zoning with a Scenic Resources combining district. Utility improvements, discussed in greater detail in Chapter 2, Project Description, that would serve the project would be sized to accommodate only the requirements of the project and would not induce population growth. The limited number of permanent jobs generated by project use would be consistent with the adopted Sonoma County General Plan and the Bennett Valley Area Plan.

As shown in the remaining impact analysis for Impacts AQ-2 through AQ-4, the project would not create a localized air violation of state or federal air quality standards, cumulatively contribute to any criteria pollutants to which the region is in nonattainment, or expose sensitive receptors to substantial pollution. The project is compatible with Sonoma County land uses, type and intensity of development, and zoning. The project would not conflict with the previously stated goals of the *Bay Area 2010 Clean Air Plan*, and therefore, impacts with regard to question number 1 would be less than significant.

Regarding question number 2, the Clean Air Plan includes control measures related to six primary categories: Stationary Source Measures, Mobile Source Measures, Transportation

Control Measures, Land Use and Local Impact Measures, Energy and Climate Measures, and Further Study Measures. Most of the control measures in the Clean Air Plan would not apply to the proposed project. Future Study Measure 14 regarding winery fermentation would apply to the project. As a Future Study Measure, there are no applicable best management practices (BMPs) or recommended measures that would currently apply to the project. Future Study Measure 14 suggests that further research be conducted to determine whether any Bay Area wineries meet the threshold of 10 tons ROG emissions per year, or whether cost-effective controls could be applied to Bay Area facilities to reduce emissions generated by fermentation. As discussed below in Impact AQ-2, the project would not emit 10 tons of ROG emissions per year. Impacts with regard to question number 2 would be less than significant.

Regarding question number 3, the proposed project would not disrupt or hinder implementation of any control measures delineated in the Clean Air Plan. The project would not hinder implementation of any Stationary Source Measures, Mobile Source Measures, Transportation Control Measures, Land Use and Local Impact Measures, Energy and Climate Measures, or Future Study Measures. Therefore, the project would not conflict with or obstruct implementation of control measures delineated in the Clean Air Plan. Impacts with regard to question number 3 would be less than significant.

Mitigation

No mitigation measures are required.

Impact AQ-2: The project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. This would be a less-than-significant impact.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to estimate emissions from construction and operation of the proposed project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state, to quantify criteria pollutant and GHG emissions associated with the construction and operational activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, such as the proposed project land use type and size, construction schedule, and anticipated construction equipment utilization were based on information provided by the project applicant.

Construction Impacts

Construction of the proposed project would involve construction and operation of a production facility, a tasting room hospitality building, and accessory structures. The project would include construction of 15,847 square feet of buildings on a 55-acre parcel. Construction is anticipated to occur over a 12- to 18-month period. Construction would involve demolition of three existing

structures, clearing and grubbing, and grading of approximately 3.1 acres of the site. The proposed earthwork would balance on site and would not require import or export of soil. The site grading period would take approximately 6 months during which there would be approximately 40 truck deliveries total and an average of 5 worker vehicles per day.

Standard construction methods would be employed for building construction. During the complete 12- to 18-month period, there would be a total of approximately 50 concrete trucks and 30 materials delivery trucks. An average of 10–12 workers would be on site daily working 8–10 hours per day.

Sources of emissions would include: off-road construction equipment exhaust, on-road vehicles exhaust and entrained road dust (i.e., haul trucks, concrete trucks, worker vehicles), fugitive dust associated with site preparation and grading activities, and paving and architectural coating activities. Detailed equipment utilization associated with project construction is included in Appendix C.

Average daily emissions, necessary for comparison to BAAQMD thresholds of significance, were computed by dividing the total construction emissions by the number of construction days. Table 3.3-5 shows project construction emissions of ROG, NO_x, PM₁₀ exhaust, and PM_{2.5} exhaust during project construction.

**Table 3.3-5
Project Construction Emissions**

	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
Total 2016 Emissions (tons/year)	0.07 tons	0.75 tons	0.04 tons	0.04 tons
Total 2017 Emissions (tons/year)	0.40 tons	2.19 tons	0.13 tons	0.13 tons
Average daily emissions (lbs/day)*	3.3 lbs	20.8 lbs	1.3 lbs	1.2 lbs
<i>BAAQMD Thresholds (lbs/day)</i>	<i>54 lbs</i>	<i>54 lbs</i>	<i>82 lbs</i>	<i>54 lbs</i>
Exceed Threshold?	No	No	No	No

Source: Appendix C

Note:

* Assumes 283 work days.

As shown in Table 3.3-5, construction of the proposed project would not exceed BAAQMD significance thresholds. Impacts during construction would be less than significant.

Fugitive Dust

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site. Fugitive dust emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions.

Fugitive dust emissions would also depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

The BAAQMD does not have a quantitative significance threshold for fugitive dust. The BAAQMD's CEQA Guidelines recommend that projects determine the significance for fugitive dust through application of BMPs. The project contractor would be required as conditions of approval to implement the following BMPs that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Implementation of the required fugitive dust control measures would ensure air quality and fugitive dust-related impacts associated with grading and new construction would remain less than significant.

Operational Impacts

Operation of the proposed project would include operation of a production facility capable of producing 10,000 pounds of cheese and 10,000 cases of wine per year, and conducting, by appointment, tastings and hosting up to eight agricultural promotion events per year. Operation of the project is not expected to substantially increase air pollution. Raw materials used for production of wine and farmstead goods are mainly grown on site. Main sources of air pollution during operation

would be from area sources (agriculture, construction, or other non-site-specific source) and from motor vehicles traveling to and from the proposed project.

Annual criteria pollutant emissions from project operations are presented in Table 3.3-6. Emissions were calculated using CalEEMod. Detailed calculations are presented in Appendix C.

**Table 3.3-6
Maximum Annual Operational Emissions**

Emission Totals (tons/year)								
Source	ROG	CO	NO _x	SO ₂	PM ₁₀ (Exhaust)	PM ₁₀ (Fugitive)	PM _{2.5} (Exhaust)	PM _{2.5} (Fugitive)
Area	0.34	0.03	>0.01	0.00	>0.01	0.00	>0.01	0.00
Energy	0.00	0.01	0.02	>0.01	>0.01	0.00	>0.01	0.00
Mobile	0.14	1.58	0.35	>0.01	>0.01	0.16	>0.01	0.04
<i>Subtotal</i>	<i>0.48</i>	<i>1.62</i>	<i>0.37</i>	<i>0.00</i>	<i>0.01</i>	<i>0.16</i>	<i>0.01</i>	<i>0.04</i>
Existing Residential	0.07	0.05	0.27	0.00	0.01	0.01	0.01	0.01
Net Total	0.41	1.57	0.10	0.00	0.00	0.15	0.00	0.03
BAAQMD Thresholds	10	N/A	10	N/A	15	N/A	10	N/A
Exceed Threshold?	No	N/A	No	N/A	No	N/A	No	N/A

Source: Appendix C

As shown in Table 3.3-6, operation of the project would not exceed annual thresholds as established by the BAAQMD for any criteria pollutants. Impacts related to emission of criteria pollutants during operation would be less than significant.

Mitigation

No mitigation measures are required.

Impact AQ-3: The project would not result in a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). This would be a less-than-significant impact.

Past, present, and future development projects may contribute to the region's adverse air quality impacts on a cumulative basis. Per BAAQMD's CEQA Guidelines, by its nature air pollution is largely a cumulative impact; no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, if the proposed

project's emissions are below the BAAQMD thresholds or the screening criteria, then the proposed project's cumulative impact can be considered to be less than significant.

Construction Impacts

Thresholds established by the BAAQMD as shown in Table 3.3-4 are used to evaluate air quality impacts, including cumulative impacts. Thresholds established by the BAAQMD reflect the attainment status of the project area and provide for the consideration of project impacts in light of the region's nonattainment status for certain criteria pollutants. Table 3.3-5 shows that construction of the project would not exceed BAAQMD construction thresholds for any criteria pollutants; therefore, construction activities would not contribute to existing cumulatively considerable impacts. Cumulative impacts would be considered less than significant during the temporary construction period. Although cumulative impacts are already less than significant, by incorporating the use of construction BMPs into the project as recommended by the BAAQMD, potential construction emissions would be further reduced.

Operational Impacts

Thresholds of significance for operational emissions of criteria air pollutants and precursors are shown in Table 3.3-4 above. The thresholds of significance show levels at which a project's individual emissions of criteria air pollutants and precursors would have a significant contribution to the project region's existing air quality conditions. As shown in Table 3.3-6, daily average operational emissions of criteria air pollutants and precursors are well below the thresholds of significance established by the BAAQMD. Therefore, cumulative impacts would be considered less than significant.

Mitigation

No mitigation measures are required.

Impact AQ-4: The project would not expose sensitive receptors to substantial pollutant concentrations. This would be a less-than-significant impact.

The BAAQMD has adopted project and cumulative thresholds for three risk-related air quality indicators to sensitive receptors: cancer risks, noncancer health effects, and increases in ambient air concentrations of PM_{2.5}. These impacts are addressed on a localized rather than regional basis, in relation to sensitive receptors identified for the project. Sensitive receptors are groups of individuals, including children, the elderly, the acutely ill, and the chronically ill, that may be more susceptible to health risks due to chemical exposure. Sensitive-receptor population groups are likely to be located at hospitals, medical clinics, schools, playgrounds, childcare centers,

residences, and retirement homes. Sensitive receptors within an approximate 1.5-mile radius of the site are identified below in Table 3.3-7.

Table 3.3-7
Sensitive Receptors Within 1.5 Miles of the Project

Receptor ID	Receptor Type	Receptor Location	UTM Coordinates (E/N)	Distance (miles)
1	Residence & Farm	Sonoma Mountain Road west of the project site	534309, 4246611	0.23
2	Residence & Farm	Sonoma Mountain Road west of the project site	534128, 4246724	0.32
3	Residence	Sonoma Mountain Road west of the project site	534232, 4246862	0.28
4	Residence	Sonoma Mountain Road east of project site	534801, 4246962	0.18
5	Residence	Sonoma Mountain Road east of project site	535320, 4246725	0.40
6	Residence	Sonoma Mountain Road west of the project site	533416, 4246698	0.78
7	Residence	Sonoma Mountain Road west of the project site	532837, 4246840	1.14
8	Residence	Pressley Road south of Sonoma Mountain Road	532712, 4246711	1.21

Source: Appendix G

Notes: All coordinates from Google Earth (approximate center point of each receptor location), image date 2016.

Construction Impacts

TACs and PM_{2.5} can cause cancer and noncancer chronic and acute health impacts such as birth defects, neurological damage, asthma, bronchitis, or genetic damage and short-term acute affects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. CARB has classified diesel PM as a TAC. The BAAQMD CEQA Guidelines include land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, and gasoline dispensing facilities as sources of TACs (BAAQMD 2010a).

During construction of the proposed project, the maximum daily concentration of PM₁₀ emissions would be 4.7 pounds per day. Maximum daily PM_{2.5} emissions would be 3.0 pounds per day. This includes emissions from worker trips (10–12 workers on site per day) and hauling trips (approximately 50 concrete trucks and 30 materials delivery trucks). Specifically, construction of the project would generate a maximum of 1.3 pounds per day of PM₁₀ and 1.2 pounds per day of PM_{2.5} from vehicle exhaust. The remaining 3.4 pounds per day of PM₁₀ and 1.8 pounds per day of PM_{2.5} emissions would be associated with fugitive dust.

During construction, the project would generate PM₁₀ and PM_{2.5} emissions that remain well below the BAAQMD Thresholds of Significance for daily emissions and well below the level of PM_{2.5} emissions that could generate an increase in cancer risk of 10 in 1 million or an increase in the annual average PM_{2.5} concentrations of 0.3 µg/m³ (micrograms per cubic meter). Therefore, impacts would be less than significant.

Asbestos from Demolition Activities

Structures to be demolished sometimes contain asbestos containing materials (ACMs). Demolition of existing buildings and structures would be subject to BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). BAAQMD Regulation 11, Rule 2 is intended to limit asbestos emissions from demolition or renovation of structures and the associated disturbance of ACM generated or handled during these activities. The rule addresses the national emissions standards for asbestos along with some additional requirements. The rule requires the Lead Agency and its contractors to notify BAAQMD of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether ACMs are potentially present. All ACMs found on site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, including specific requirements for surveying, notification, removal, and disposal of ACMs. The project is required to comply with BAAQMD Regulation 11, Rule 2, ensuring that ACMs would be removed and disposed of appropriately and safely. Complying with BAAQMD Regulation 11, Rule 2 would minimize the release of airborne asbestos emissions; therefore, demolition activity would result in a less-than-significant impact to air quality.

Operational Impacts

Properties surrounding the project site support mainly low-density residential uses, agricultural uses, and public land uses, and are not stationary sources of air pollution. The project site is approximately 5 miles west of Highway 12 and approximately 6 miles east of Highway 101, and there are no other heavily travelled roads proximate to the project site. The project site is not in proximity of any other land uses that are considered sources of TACs; nor is the project itself a land use that is considered a source of TACs.

During operation of the proposed project, the maximum daily concentration of PM₁₀ emissions would be 0.16 pound per day. Maximum daily PM_{2.5} emissions would be 0.04 pound per day. During operation the project would generate PM₁₀ and PM_{2.5} emissions that remain well below the BAAQMD Thresholds of Significance for daily emissions (82 lbs/day for PM₁₀ and 5 lbs/day for PM_{2.5}) and well below the level of PM_{2.5} emissions that could generate an increase in cancer risk of 10 in 1 million or an increase in the annual average PM_{2.5} concentrations of 0.3 µg/m³. Therefore, project impacts would be less than significant.

Local Carbon Monoxide Concentrations

The BAAQMD Thresholds of Significance for local carbon monoxide (CO) emissions is the 1-hour and 8-hour CAAQS of 20.0 ppm and 9.0 ppm, respectively. By definition, these represent levels that are protective of public health. If a project would cause local emissions of CO to exceed any of the thresholds listed below, the proposed project would result in a significant impact to air quality.

Because CO impacts have been historically related to automobile idling at intersections, the BAAQMD CEQA Guidelines contain a preliminary screening methodology that provides a conservative indication of whether the implementation of the proposed project would result in CO emissions that exceed the Thresholds of Significance based on automobile traffic at intersections.

According to the BAAQMD CEQA Guidelines (BAAQMD 2010a), a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria is met:

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The project is consistent with the local congestion management program. As discussed in Section 3.9, Transportation and Traffic, there are no intersections affected by the project that would exceed 24,000 vehicles per hour and no intersections that would exceed the Sonoma County standards for acceptable Levels of Service. Therefore, the CO impacts from project traffic would be less than significant.

Cumulative Risks and Hazards

According to the BAAQMD's adopted Guidelines (BAAQMD 2012a), for evaluating cumulative risks, permitted stationary sources of TACs near the project site were identified using BAAQMD's *Stationary Source Risk and Hazard Analysis Tool* for sources in Sonoma County. This mapping tool uses Google Earth to identify the location of stationary sources and their

estimated screening level cancer risk and hazard impacts. No stationary sources within a 0.5-mile radius of the project site were identified.

The proposed project would both be in compliance with the BAAQMD's adopted Thresholds for single source and cumulative community risks, as well as hazard index risks. The proposed project would have a less-than-significant cumulative health risk impact.

Mitigation

No mitigation measures are required.

Impact AQ-5: The project could create objectionable odors affecting a substantial number of people. This is a potentially significant impact.

Construction Impacts

Construction of the proposed project would increase air pollutants due to the combustion of diesel fuel. Some individuals may sense that emissions from the combustion of diesel fuel have an objectionable odor, although it is difficult to quantify the odorous impacts of these temporary and intermittent emissions to the public. The application of architectural coatings and the paving of parts of the site with asphalt also would have the potential to cause odors; however, these odors would be temporary and not likely to be noticeable for extended periods of time much beyond the project's site boundaries. Therefore, impacts associated with odors during construction would be considered less than significant.

Operational Impacts

Operation of the proposed project would involve fermentation of wine and production of cheese and other agricultural products on site. As discussed in Chapter 2, Project Description, the facility would process and treat all project sanitary wastewater and process wastewater on site.

These activities could generate odors on a small scale as described below. The nearest sensitive off-site receptors are located approximately 950 feet from proposed project activities.

Wineries do not generate odors with the possible exception of pomace from grape crushing which can create objectionable odors if not handled properly. MM-AQ-1 has been implemented at numerous wineries in Sonoma County and would reduce impacts from potential odors from pomace to a level that is less than significant.

Cheese production on the scale proposed by the project would not generate substantial odors. Initial stages of cheesemaking (making curds, draining cheese) produces no odor. The heating process may generate slight odors, but these do not extend beyond the production room. The

aging process may generate odors and ammonia depending on the type of cheese produced, which may affect the aging room or adjacent rooms in the creamery, or within a few feet of the ventilation outlet from the aging room, but not beyond (Browne, pers. comm. 2016). Cheese production would not create objectionable odors affecting a substantial number of people and the impact is less than significant.

The applicant proposes to feed the waste products from cheese production to the on-site livestock (pigs). These products are also often composted. The project may also generate waste plant material from the orchard and vegetable garden. Composting of these materials can generate odors if not handled properly. Given the size of the property and distance to neighboring dwellings, odor impacts would be less than significant at the level of composting that would result from the project.

Sanitary and process water would be treated in septic tanks and a filled-land standard leachfield system. This type of system, when properly installed, does not generate substantial odors. The reserve process water system includes pre-treatment in septic tanks, a commercial grade aerated textile pre-treatment unit, and contained tanks before discharge as drip irrigation. The system is designed to result in odorless effluent (Orenco 2015). Processing of waste water on site would not create objectionable odors affecting a substantial number of people, and the impact is less than significant.

Mitigation

MM-AQ-1 Pomace and other waste products from processing of agricultural materials shall be disposed of in a manner that does not create a discharge to surface water, or create nuisance odor conditions, or attract nuisance insects or animals, according to the following priority:

- a. Agricultural waste products (pomace, cheese waste, etc.) shall be composted and land applied, or land applied and disked into the soil on vineyards or agricultural land owned or controlled by the applicant.
- b. Agricultural waste products (pomace, cheese waste, etc.) shall be sold, traded, or donated to willing soil amendment or composting companies that prepare organic material for use in land application.

Significance of Impact After Mitigation

Implementation of the mitigation measure MM-AQ-1 would reduce potential odor impacts to **less-than-significant levels.**

3.3.3.3 Cumulative Impacts

Impact AQ-6: The project would not contribute to cumulative impacts with respect to air quality. This would be a less-than-significant impact.

The BAAQMD recommends that for any project that does not have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan (BAAQMD 2012a). Individual projects that generate construction or operational emissions that exceed the BAAQMD recommended daily thresholds would result in a cumulatively significant impact.

The proposed project is located in the SFBAAB which is in nonattainment for ozone, PM₁₀, and PM_{2.5} federal standards and is in nonattainment for ozone and PM_{2.5} state standards. The overall air quality in the SFBAAB results from cumulative emissions from all emissions sources. As discussed previously, construction and operation of the proposed project would generate ROG and NO_x emissions (which are precursors to O₃), and emissions of PM₁₀ and PM_{2.5}. However, as indicated in Tables 3.3-5 and 3.3-6, project-generated construction and operational emissions, respectively, would not exceed the BAAQMD emission-based significance thresholds for ROG, NO_x, PM₁₀, or PM_{2.5}.

Cumulative localized impacts would potentially occur if a construction project were to occur concurrently with another off-site project. The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). Construction schedules for potential future projects near the project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be considered speculative. However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation if the project would exceed BAAQMD thresholds. Air pollutant emissions associated with construction activity of future projects would be reduced through implementation of BMPs required by the BAAQMD. Cumulative PM₁₀ and PM_{2.5} emissions would be reduced because all future projects would be subject to BAAQMD construction BMPs, which sets forth general and specific requirements for all construction sites in the BAAQMD.

In addition, the proposed project was found to not conflict with the primary goals of the Clean Air Plan or hinder implementation of the Clean Air Plan control measures. Most of the control measures in the Clean Air Plan would not apply to the proposed project. None of the 18 stationary source control measures are applicable to the project. In addition, none of the 10 mobile source measures directly apply to the project. Similarly, none of the 17 transportation control measures directly apply to the project. Future Study Measure 14 regarding winery

fermentation may be applicable to the proposed project; however, as a Future Study Measure, there are no applicable BMPs or recommended measures that would currently apply to the project. The proposed project would not hinder or delay implementation of the control measures found within the Clean Air Plan. Therefore, the proposed project would result in a less-than-significant cumulative impact.

Mitigation

No mitigation measures are required.

3.3.4 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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3.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources of the project site and vicinity, identifies associated regulatory requirements, evaluates potential project level and cumulative impacts, and identifies mitigation measures related to implementation of the proposed project.

The information presented in this section is based on the Biological Assessment completed by Kjeldsen Biological Consultants in 2013, additional surveys conducted by Dudek staff biologist Laura Burris in October 2015, and a Habitat Assessment for California red-legged frog (*Rana draytonii*) performed by Dudek Senior Aquatic Ecologist Craig Seltenrich in March 2016, which are included in Appendix D of this EIR.

3.4.1 Environmental Setting

This section describes the existing conditions in the project area and also identifies the resources that could be affected by the proposed project.

Regional Setting

The project site lies in the North Coast Range Mountains, and is located in the hills to the southeast of Santa Rosa at the base of Sonoma Mountain. The overall Mediterranean climate of the project area is characterized by hot, dry summers and cool, wet winters with an average annual temperature range of 45° to 90° Fahrenheit and a precipitation level range of 30 to 60+ inches per year. The soils of the area are of volcanic origin. Sonoma County has mapped 259 soil types classified into 15 major soil associations (County of Sonoma 2006). Five of these associations are found in basins, tidal flats, flood plains, terraces and alluvial fans, while the remaining ten associations are found in high terraces, foothills, uplands, and mountains. Vegetation communities and associated wildlife habitats found in the project area include a mosaic of herbaceous, shrub and tree dominated types, as well as aquatic and developed types.

Local Setting

The 55-acre project site is located at 5561 Sonoma Mountain Road in southeastern Sonoma County [Assessor's Parcel Number (APN) 049-030-010] approximately 5.5 miles west of Glen Ellen and 7 miles east of the City of Rohnert Park. General land uses surrounding the project site are diverse agriculture, rural residential, land intensive agriculture, resources and rural development, and park and open space. Elevations on the project site extend from about 880 to 1,080 feet above mean sea level. The proposed development is located on the northeast portion of the property within very gently sloping terrain. Further south the property consists of a series of low, hummocky knolls planted with vineyards. Soils on the project belong to two different series: Goulding and Spreckles (USDA 2015). Goulding belongs to the Goulding–Toomes–

Guenoc association and is a Group E soil, while Spreckles belongs to the Spreckles–Felta association and is a Group D soil (County of Sonoma 2006). Both of these soil associations are classified as suitable range, pasture soils. These soils provide a medium for plant growth and support the following vegetation communities and associated wildlife habitats: black or white oak, manzanita, poison oak, small shrubs and annual or perennial grasses (USDA 1972). The project site is located within developed landscape or within ruderal semi-natural grassland. There is an irrigation pond located in the southwest corner of the project site. South Fork Matanzas Creek runs through the southwest corner of the site. There is a seasonal drainage on the east side of the property. This unnamed drainage conveys water to a roadside ditch and then to South Fork Matanzas Creek.

Vegetation Communities and Associated Wildlife Habitats

The communities identified on the project site are broadly classified, whenever possible, into alliances and associations as described in *A Manual of California Vegetation* (Sawyer et al., 2009). The project footprint is entirely within a developed landscape that has been in agriculture use for decades. The footprint is either within or on hardscape or agricultural grassland. *A Manual of California Vegetation* identifies the agricultural grassland as grassland semi-natural herbaceous stands with herbaceous layer (annual grassland). One un-named drainage, a tributary to South Fork Matanzas Creek, flows through the northeast corner of the property, west of the proposed development area. This drainage creek supports a riparian vegetation community. The South Fork Matanzas Creek flows through the southwest corner of the project site. The main vegetation communities and associated wildlife habitats are described below and shown on Figure 3.4-1. The on-site aquatic resources are shown on Figure 3.4-2.

Grasslands

Semi-Natural Herbaceous Stands with Herbaceous Layer

Semi-natural herbaceous grasslands are a result of decades of grazing and the introduction of non-native grasses and herbs. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of historic agricultural practices and fire suppression or management practices for weed abatement and fire suppression. Grasslands are found throughout the project site. This community occurs on portions of the northeastern corner, as well as throughout the middle and southwestern regions of the property. Semi-natural grasslands are comprised of primarily non-native species with native species forming only a small percentage of the herbaceous cover. A study of the project site by Kjeldsen Biological Consulting (Appendix D) found the grassland on the project site is co-dominated by *Avena barbata* and *A. fatua* (wild oats). Common non-native grasses and forbs found in the annual grassland on the project site include species such as annual bluegrass (*Poa annua*), birdfoot

trefoil (*Lotus corniculatus*), broadleaf filaree (*Erodium botrys*), bull thistle (*Cirsium vulgare*), bur clover (*Medicago polymorpha*), cat's ear (*Hypochaeris glabra* and *H. radicata*), common geranium (*Geranium dissectum* and *G. molle*), harding grass (*Phalaris aquatica*), narrow leaved-vetch (*Vicia sativa*), orchard grass (*Dactylis glomerata*), rattail fescue (*Festuca myuros*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), velvet grass (*Holcus lanatus*), and yellow star thistle (*Centaurea solstitialis*). Native grasses and forbs found on the project site include species such as American vetch (*Vicia americana*), California poppy (*Eschscholzia californica*), coyote brush (*Baccharis pilularis*), meadow barley (*Hordeum brachyantherum*), purple clarkia (*Clarkia purpurea*), and red maids (*Calandrinia ciliata*).

Animal species that typically inhabit grassland habitats are those that have adapted to dry conditions. These are grazing species, burrowing species, and their predators; insects and spiders are abundant. Some species forage in grassland and retreat to the protective cover of other habitats for shelter and nesting, while others disperse through this habitat. Animal species generally found in annual grassland habitats include mammals, such as black-tailed jackrabbit (*Lepus californicus*), pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), deer mouse (*Peromyscus* sp.), golden eagle (*Aquila chrysaetos*) and red-tailed hawk (*Buteo jamaicensis*). Reptiles are also frequently found in grassland habitats, such as gopher snake (*Pituophis catenifer*), Northern Pacific rattlesnake (*Crotalus oreganus oreganus*), and western fence lizard (*Sceloporus occidentalis*).

Riparian Habitat

An unnamed drainage runs through the property along the northeast portion of the project site west of the proposed development which contains riparian habitat. Riparian vegetation functions to control water temperature, regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which functions as habitat and slow nutrient release, and protection for aquatic organisms. The riparian habitat on site is located around the unnamed drainage on the northeast portion of the property. The overstory is dominated by the coast live oak (*Quercus agrifolia*) with Himalayan blackberry (*Rubus armeniacus*) and periwinkle (*Vinca major*) composing the dominant understory.

South Fork Matanzas Creek bisects the southwestern edge of the property. The riparian corridor associated with this creek is similar to that along the unnamed drainage; however, it is larger in size and nonnative vegetation such as Himalayan blackberry and periwinkle are less prevalent in the understory.

Animal species that inhabit riparian areas include a variety of aquatic, semi-aquatic and terrestrial species. Streamside vegetation provides habitat and food sources for many land

species while the water provides reproductive habitat and food sources for many aquatic species. Animal species generally found in riparian habitats include birds such as quail (*Callipepla californica*), tricolored blackbird (*Agelaius tricolor*), amphibians such as the California red-legged frog (*Rana draytonii*), and reptiles such as the western pond turtle (*Emys marmorata*).

Developed

Developed areas found on the project site include those that are used for agriculture and rural residential purposes. Each of these types of developments is described below.

Agriculture

Agricultural areas on the Belden Barns Farmstead and Winery project site are limited to vineyards, fruit orchards, and vegetable plots. These agricultural areas are comprised of primarily non-native species including apples (*Malus sylvestris*), figs (*Ficus carica*), pears (*Pyrus communis*), prunes and plums (*Prunus domestica* and *P. cerasifera*), olives (*Olea europaea*), and wine grapes (*Vitis vinifera*). Grasses and forbs, such as those found in the grasslands (described above), occur between the rows of vines, fruits, and vegetables.

Vineyards, fruit orchards, and vegetable plots provide mainly foraging habitat for bats such as pallid bats (*Antrozous pallidus*), and birds such as songbirds (Passeriformes). Many animal species adapted to this habitat forage here and retreat to surrounding habitats for shelter and nesting.

Irrigation Pond

A pond currently utilized for irrigation of the on-site vineyards, orchards, and gardens occurs in the grasslands at the southeastern portion of the site. This man-made agricultural pond is relatively large (approximately 375 feet long by 300 feet wide) with an apparent maximum water depth of about 15 to 20 feet and an apparent average depth of about 10 to 12 feet. The banks of the pond support emergent vegetation such as bulrush (*Schoenoplectus acutus*), rushes (*Juncus* spp.), and common knotweed (*Persicaria hydropiperoides*). This pond and the surrounding vegetation may be utilized by birds, western pond turtle, and amphibians such as California red-legged frog and bullfrog (*Lithobates catesbeianus*).

Rural Residential

The property has a history of serving as a retreat center, farm, or as a vineyard. The site is currently developed with an agricultural complex which was fairly typical of the early twentieth century. There are three dwellings, an old barn, and some accessory structures. The proposed project would replace existing structures and construct additional structures in the

already developed parts of the northeast corner of the property. The residences in this area are surrounded by cultivated vegetation commonly associated with landscaping. Some of these species include cypress trees (*Hesperocyparis macrocarpa*), ivy (*Hedera helix*), Japanese honeysuckle (*Lonicera japonica*), lavender (*Lavandula staechas*), lilac (*Syringa* spp.), oleander (*Nerium oleander*) and roses (*Rosa* spp.). The vegetation can provide suitable nesting habitat for various bird species, such as songbirds or scrub jays (*Aphelocoma coerulescens*). Man-made buildings, such as the existing animal barn, provide roosting habitat for various bat species, such as the pallid bat.

Sensitive Natural Communities

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) identifies sensitive habitat types for the quadrangles and surrounding quadrangles as coastal and valley freshwater marsh, northern vernal pool, and valley needle grass grassland. The Biological Assessment completed by Kjeldsen Biological Consultants (Appendix D), as well as follow-up surveys performed by Dudek staff in October 2015, found none of these habitat types present on the project site.

In addition to the sensitive natural communities identified above, wetlands and other waters, and riparian habitat and vegetation are considered sensitive communities. The surveys completed by Kjeldsen Biological Consultants and Dudek (Appendix D) found no seasonal wetlands associated with the footprint of the proposed project. An unnamed drainage runs through the property along the northeastern portion of the site near the proposed development and eventually drains to South Fork Matanzas Creek, which would be considered a “water of the state” and a “water of the United States.” Because the unnamed tributary is hydrologically connected to South Fork Matanzas Creek, it may also be considered jurisdictional under the Clean Water Act.

Wildlife Movement and Nursery Sites

Wildlife corridors are natural areas interspersed within developed areas that are important for movement of wildlife, increasing genetic variation in plant and animal populations, reduction of population fluctuations, retention of predators of agricultural pests, and for migration and dispersal of wildlife and plant populations. The project site and surrounding locations are largely undeveloped, supporting a diverse range of vegetation communities and associated wildlife habitats. The Sonoma Creek corridor is located approximately 5 miles east of the project site. The Sonoma Creek corridor is identified as a landscape linkage with a medium priority for conservation by the California Wilderness Coalition (2001).

Special-Status Plant and Animal Species

For the purpose of this environmental impact report (EIR), special-status plant and animal species are defined as those species that fall into one or more of the following categories:

1. Officially listed or proposed for listing under the state and/or federal Endangered Species Acts.
2. State or federal candidate for possible listing.
3. Species meeting the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines.
4. Protected under the Federal Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.
5. Species considered by the CDFW to be a “Species of Special Concern.”
6. Species that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
7. Populations in California that may be on the periphery of a species’ range, but are threatened with extirpation in California.
8. Species closely associated with habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools).
9. Species designated as a special-status, sensitive, or declining species by other state or federal agencies, or non-governmental organizations.

The potential occurrence of special-status plant and animal species on the project site was initially evaluated by developing a list of special-status species that are known to or have the potential to occur in the project vicinity. This list was primarily derived from a review of the CNDDDB (CDFW 2015), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2015), and the U.S. Fish and Wildlife Service (USFWS) lists of federal endangered and threatened species (USFWS 2015) for all or some combination of the following U.S. Geological Survey 7.5-minute quadrangles: Santa Rosa, Kenwood, Rutherford, Cotati, Glen Ellen, Sonoma, Petaluma, Petaluma River, and Sears Point. Additional searches of these resources were conducted in 2015 and the species list was updated (Appendix D).

The potential for occurrence of those species identified in the records search were then evaluated based on the habitat requirements of each species relative to the observed existing conditions, results of previous general and focused habitat assessments and surveys for plants and animals conducted in the spring and summer of 2013 (Kjeldsen Biological Consultants), and a site visit

conducted by a Dudek biologist on October 6, 2015. Other sources used included existing biological literature of the region identified by the CDFW or the USFWS (Figure 3.4-3).

Special-status Plant Species

Kjeldsen Biological Consulting staff biologists conducted field surveys in March, April, and May of 2013 to analyze the project site and surrounding habitat for special-status species. Field surveys consisted of walking transects throughout the project site and closely examining portions where target species are especially likely to occur. Additional surveys were conducted to verify site conditions and habitat types on October 6, 2015, by Dudek staff biologist Laura Burris. Based on review of the databases and other information sources, 74 special-status plant species were documented as occurring or potentially occurring in the vicinity of the project site, and having varying potential for occurrence within the vegetation communities present on the site. Of these species, four had a moderate potential to occur on the project site and are shown in Table 3.4-1 and discussed below. The remaining special-status plants are not expected to occur on the project site—species ranked with “no” or “low” potential—for varying reasons such as the absence of suitable habitat requirements for the species, the distance to known occurrences, and/or the species distribution ranges, and are not discussed further (refer to Table 1 in Appendix D).

**Table 3.4-1
Special-Status Plant Species with Potential to Occur**

Scientific Name	Common Name	Status (Federal/State/CPRP)
<i>Amsinckia lunaris</i>	Bent-flowered fiddleneck	None/None/1B.2
<i>Balsamorhiza macrolepis</i>	Big-scale balsamroot	None/None/1B.2
<i>Brodiaea leptandra</i>	Narrow-anthered brodiaea	None/None/1B.2
<i>Fritillaria liliacea</i>	Fragrant fritillary	None/None/1B.2

Status Legend:

CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

.2 Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

Bent-Flowered Fiddleneck (*Amsinckia lunaris*)

Bent-flowered fiddleneck is a CNPS List 1B.2 species. This annual herb is generally found in coastal bluff scrub, cismontane woodland, and valley and foothill grasslands between 9.8 and 1,640 feet above mean sea level (amsl) (CNPS 2015). The blooming period for bent-flowered fiddleneck is March through June. The nearest documented CNDDDB occurrence for this species is located approximately 6.6 miles northwest of the project area. Due to the disturbed nature of the semi-natural annual grassland, there is only marginally suitable habitat for this species on the project site. Additionally, botanical surveys conducted in the spring and summer of 2013, which were within the period when this plant would be evident and identifiable, did

not find evidence of this species on the project site (Appendix D). This species is not anticipated to occur within the project development footprint.

Big-Scale Balsamroot (*Balsamorhiza macrolepis*)

Big-scale balsamroot is a CNPS List 1B.2 species. This perennial herb is generally found in chaparral, cismontane woodland, and valley and foothill grasslands sometimes on serpentinite soils between 295 and 5,102 feet amsl (CNPS 2015). The blooming period for big-scale balsamroot is March through June. The nearest documented CNDDDB occurrence for this species is located approximately 2.9 miles northwest of the project area. Due to the disturbed nature of the semi-natural annual grassland, there is only marginally suitable habitat for this species on the project site. Additionally, botanical surveys conducted in the spring and summer of 2013, which were within the period when this plant would be evident and identifiable, did not find evidence of this species on the project site (Appendix D). This species is not anticipated to occur within the project development footprint.

Narrow-Anthered Brodiaea (*Brodiaea leptandra*)

Narrow-anthered brodiaea is a CNPS List 1B.2 species. This perennial bulbiferous herb is generally found in broadleaved upland forest, chaparral, cismontane coniferous forest, and valley and foothill grasslands on volcanic soils between 360 and 3,000 feet amsl (CNPS 2015). The blooming period for narrow-anthered brodiaea is May through July. The nearest documented CNDDDB occurrence for this species is located approximately 5.7 miles northeast of the project area. Due to the disturbed nature of the semi-natural annual grassland, there is only marginally suitable habitat for this species on the project site. Additionally, botanical surveys conducted in the spring and summer of 2013, which were within the period when this plant would be evident and identifiable, did not find evidence of this species on the project site (Appendix D). This species is not anticipated to occur within the project development footprint.

Fragrant Fritillary (*Fritillaria liliacea*)

Fragrant fritillary is a CNPS List 1B.2 species. This perennial bulbiferous herb is generally found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands often on serpentinite soils between 9.8 and 1,345 feet amsl (CNPS 2015). The blooming period for fragrant fritillary is February through April. The nearest documented CNDDDB occurrence for this species is located approximately 1.7 miles southeast, at Jack London State Historic Park. Due to the disturbed nature of the semi-natural annual grassland, there is only marginally suitable habitat for this species on the project site. Additionally, botanical surveys conducted in the spring and summer of 2013, which were within the period when this plant would be evident and identifiable, did not find evidence of this species on the project site (Appendix D). This species is not anticipated to occur within the project development footprint.

Special-status Animal Species

Kjeldsen Biological Consultants staff biologists conducted surveys of the project site for special-status animals. Survey techniques included binocular surveys of property and perimeter, identification of potential habitat on site for special-status species, tree examination for raptor nests, and roosting habitat surveys for potential bat breeding habitat. Additional surveys were conducted on October 6, 2015, by Dudek staff biologist Laura Burris, and a Habitat Assessment for California red-legged frog was performed by Dudek senior aquatic ecologist Craig Seltenrich on March 14, 2016 (Appendix D). Based on results of the surveys, review of the databases and other information sources, 46 special-status animal species have been documented as occurring or potentially occurring in the vicinity of the project site and having varying potential for occurrence within the habitats present on the site. Of these species, five are considered to have a moderate to high potential for occurring; they are listed in Table 3.4-2 and discussed below. The remaining special-status animals are not expected to occur on the project site—species ranked with “no” or “low” potential—for varying reasons such as the absence of essential habitat requirements for the species, the distance to known occurrences and/or the species distribution ranges, and/or the limited availability of suitable habitat, and are not discussed further in this section (refer to Table 2 in Appendix D).

**Table 3.4-2
Special-Status Animal Species with Potential to Occur**

Scientific Name	Common Name	Status (Federal/State)
<i>Amphibians</i>		
<i>Rana draytonii</i>	California red-legged frog	FT/SSC
<i>Reptiles</i>		
<i>Emys marmorata</i>	Western pond turtle	None/SSC
<i>Birds</i>		
<i>Buteo regalis</i> (wintering)	Ferruginous hawk	BCC/WL
<i>Mammals</i>		
<i>Antrozous pallidus</i>	Pallid bat	None/SSC
<i>Taxidea taxus</i>	American badger	None/SSC

Status Legend:

FT: Federally Threatened

BCC: USFWS Bird of Conservation Concern

SSC: California Species of Special Concern

WL: California Watch List Species

Amphibians, Reptiles and Fish

California Red-Legged Frog (*Rana draytonii*)

The California red-legged frog is federally listed as a threatened species with revised critical habitat designation by USFWS in 2010, and is listed as a California Species of Special Concern. CDFW has 19 documented occurrence of California red-legged frog within 5 miles of the property; the closest occurrences are approximately 1.2 miles east, 1.5 miles south, and 1.6 miles southeast (CDFW 2015). Additionally, critical habitat for this species has been designated 2 miles north and 1.3 miles south of the project site.

The historic range of the California red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California; southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). California red-legged frogs were historically documented in 46 counties; however, this species is now restricted to 238 streams or drainages within 23 counties. This represents a loss of 70% of its former range (USFWS 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central coast. Within the current distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. California red-legged frogs are believed to be extirpated from the southern Transverse and Peninsular ranges, but are still present in Baja California, Mexico (CDFW 2015).

Typically, California red-legged frogs are confined to aquatic habitats such as creeks, streams, and ponds, and occur primarily in areas of deep still or slow-moving water, with adjacent dense, shrubby, riparian vegetation (Jennings and Hayes 1994). Breeding for California red-legged frog is early in the year from late-November to late-April. Females attach eggs to an emergent vegetation brace until hatching within 6 to 14 days (Jennings and Hayes 1994). Metamorphosis generally occurs between July and September. During the non-breeding season, habitat includes nearly any area within 1 to 2 miles of a breeding site that remains moist and cool through the summer (Fellers 2005), which can include vegetated areas with coyote bush (*Baccharis pilularis*), California blackberry thickets (*Rubus ursinus*), and root masses associated with willow (*Salix* spp.) and California bay trees (*Umbellularia californica*). Non-breeding habitat used by California red-legged frogs can be extremely limited in size (e.g. non-breeding California red-legged frogs have been found in a 2-meter-wide [6-foot-wide] coyote bush thicket growing along a tiny intermittent creek surrounded by heavily grazed grassland [Fellers 2005]). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species. In addition, any landscape features that provide cover (such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris) or agricultural features (such as drains, watering troughs, spring

boxes, abandoned sheds, or hay stacks) may also be used by California red-legged frogs. Incised stream channels with portions narrower and depths greater than 0.45 meter (1.5 feet) may also provide important summer sheltering habitat.

The stream corridors within and adjacent to the project site provide avenues for species dispersal and migration. The unnamed drainage on the east side of the property is seasonal, which reasonably precludes presence of this species for breeding; however, the species could potentially utilize this stream corridor for overland migration and dispersal during the rainy season. South Fork Matanzas Creek is a perennial water feature and likely contains enough moisture throughout the year to provide suitable habitat for this species. The creek is located approximately 1,350 feet from the areas proposed for major ground disturbance, while the unnamed drainage is located approximately 560 feet from areas of disturbance. The irrigation pond on the project site is located approximately 800 feet from the areas proposed for major ground disturbance around the existing barn, residence, and vineyard buildings.

Based on the site habitat assessment performed by Dudek in March 2016, the irrigation pond appears to provide suitable breeding habitat for California red-legged frogs, although this species was not observed during the habitat assessment (Appendix D). American bullfrog juveniles were observed in several locations around the pond, although the numbers of frogs did not indicate a large population was present. Even though the pond contains bullfrogs, the pond is fairly large and there is a substantial amount of complex habitat (primarily associated with abundant vegetative cover) around the margin of the pond that could provide refugia for California red-legged frogs from predatory bullfrogs. Bullfrogs and California red-legged frogs have been documented co-existing in aquatic habitats that contain complex cover (Storer 1925; Hayes and Tennant 1985; Rathbun 1998; Cook and Jennings 2007; D'Amore et al. 2009). Potentially suitable underground refugia are also present in the vicinity of the pond, and both ground squirrel (*Spermophilus (Otospermophilus) beecheyi*) and pocket gopher burrows are common in the uplands immediately surrounding the pond.

It is unknown if California red-legged frogs are present in the irrigation pond or utilize the pond for breeding or for summer refugia. Due to the abundance of vegetation and complex cover habitat within and along the pond banks, conducting formal California red-legged frog surveys may be insufficient to determine presence/absence of the frog. Because there is suitable habitat in the pond and suitable migration habitat in the adjacent South Fork Matanzas Creek, there is potential for this species to be present within the pond and adjacent habitat.

Western Pond Turtle (*Emys marmorata*)

The western pond turtle is found throughout California and is listed by the state as a Species of Special Concern. While this species does not currently have federal status, a petition to list

western pond turtle as threatened or endangered is currently under review by the USFWS (80 FR 19262 (April 10, 2015)). Typically western pond turtles are confined to permanent or intermittent aquatic habitats such as rivers, creeks, small lakes and ponds, marshes, irrigation ditches, and reservoirs. Western pond turtles require terrestrial habitats for refuge and basking and nesting sites. Refuge sites include partially submerged logs or rocks or mats of floating vegetation. Basking sites can be partially submerged rocks or logs, as well as shallow sloping banks with little or no cover (Appendix D). Nesting, which generally occurs between late April and early August, occurs in sandy banks or in soils up to 100 meters (approximately 330 feet) away from aquatic habitat (Jennings and Hayes 1994). They may also overwinter on land and spend part of the warmest months in aestivation on land. The nearest documented occurrence of this species is located approximately 2.6 miles northwest of the project site (CDFW 2015).

As noted above, the irrigation pond on the project site is located approximately 800 feet from the areas proposed for major ground disturbance around the existing barn, residence, and vineyard buildings. Areas closer to the pond would be either left in their present state, used for limited livestock grazing, or modified to orchard and vegetable crops, which would not constitute major ground disturbance. A milking barn is proposed in the southeast corner of the property, approximately 500 feet from the pond and would not constitute a major ground disturbance within close proximity to this pond. The pond provides moderately suitable breeding and foraging habitat for western pond turtles with aquatic habitat and associated muddy banks. The grassland habitat provides potentially suitable aestivation and nesting habitat, and the stream corridor provides avenues for species migration. Surveys of the irrigation pond in March, April, and May of 2013 by Kjeldsen Biological Consultants staff biologists, a survey conducted by Dudek staff in October, 2015, and a California red-legged frog Habitat Assessment conducted by Dudek staff in March, 2016, found no evidence of western pond turtles present in the irrigation pond (Appendix D). Although unlikely, there is potential this species to be present within the pond and surrounding grassland.

Birds

Ferruginous Hawk (Buteo regalis)

Ferruginous hawk is a federal Bird of Conservation Concern and a state Watch List bird. Although there are no records of ferruginous hawk breeding in California, populations from the northern breeding range (Washington, Montana, North Dakota, and Canada) migrate southward beginning in August to early October (Zeiner et al. 1990; Schmutz and Fyfe 1987). This species is an uncommon winter resident and migrant at lower elevations and open grasslands in the Coast Ranges, where the project area is located. The nearest documented occurrence of this species is located approximately 2.8 miles southeast of the project site (CDFW 2015). There is potential for this species to utilize the project site for foraging during the months of August through October.

Mammals

Pallid Bat (Antrozous pallidus)

Pallid bats, a California Species of Special Concern, are widespread throughout the western United States; southern British Columbia, Canada; and mainland and Baja California, Mexico (Hermanson and O’Shea 1983; Hall 1981). Within the United States, it ranges east into southern Nebraska, western Oklahoma, and western Texas. The pallid bat is locally common in arid deserts (especially the Sonoran life zone) and grasslands throughout the western United States, and also occurs in shrublands, woodlands, and forests at elevations up to 2,440 meters (8,000 feet) (Hermanson and O’Shea 1983; Hall 1981). Although this species prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging, it has been observed far from such areas (Hermanson and O’Shea 1983). Pallid bat day roosts of single- or mixed-sex colonies, often including greater than 20 individuals and sometimes more than 200 individuals, usually are established in crevices or man-made structures (Hermanson and O’Shea 1983). The selection of crevices may vary seasonally in relation to “adaptive hypothermia” in the species.

Pallid bats forage for a variety of insects, including flightless arthropods picked up from the ground (e.g., scorpions and ground crickets), insects gleaned from vegetation (e.g., cicadas), insects taken in flight, and small vertebrates that are taken on the ground. Although the species is capable of flying more than 18 miles, most foraging occurs within about 2 miles of the diurnal roost (Hermanson and O’Shea 1983).

The project site supports potentially suitable habitat for pallid bat. The buildings in the project area provide some suitable roosting habitat. However, the absence of caves, mines, rocky outcrops, and cliffs on the proposed development site limits habitat suitability. The grassland and riparian corridor provide suitable foraging habitat for these species. Potential bat roosting and breeding habitat was surveyed for within 200 feet of the proposed project, by looking for roosting habitat in buildings that were accessible, rock outcrops, tree crevasses, and evidence of roosting. No evidence of the presence of bats or roosts in the buildings, including the large barn and ranch buildings was found during these surveys. The CNDDDB lists a sighting of pallid bat approximately 2 miles east of the project; however, no bats or sign of bats was observed on the project site during field surveys (Appendix D). It is unlikely bat species would occur on the project site given the ruderal nature of potential roosting habitat, the history of disturbance, and the lack of proper hydrology and topography.

American Badger (Taxidea taxus)

American badger is a California Species of Special Concern. This mammal species is primarily known from open grassland habitats throughout California. They utilize their strong front limbs and long claws for digging to capture prey and to create burrows for dwelling and rearing young. Badgers

primarily prey on ground-dwelling rodents such as pocket gophers, moles, deer mice, voles (*Microtus californicus*), and ground squirrels (Zeiner et al. 1990).

No sign of badger (suitable dens, scat, or foraging sign) was noted during surveys of the project site; thus, badgers are not anticipated to occur within the project site.

3.4.2 Regulatory Framework

Federal

The following federal regulations pertaining to biological resources would apply to the proposed project.

Federal Endangered Species Act

The federal Endangered Species Act (FESA) (16 U.S.C. 1533) gives joint authority to list a species as threatened or endangered to the Secretary of the Interior (represented by the USFWS) and the Secretary of Commerce (represented by the National Marine Fisheries Service (NMFS)). Under FESA, the “take” of endangered or threatened fish, wildlife, or plant species or adverse modifications to critical habitat, in areas under federal jurisdiction is prohibited. Under the Act “take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The USFWS and NMFS have interpreted the definition of “harm” to include significant habitat modification that could result in the take of a species.

Either an incidental take permit under Section 10(a) or an incidental take statement under Section 7 is required if an activity would result in the take of a federally listed species. Section 7 applies when a project includes federal funding or approvals, which not apply to the proposed project. Section 7 requires the reviewing agency to determine whether any federally listed species, or species proposed for listing, may be present on the project site and if the project is likely to affect the species. Additionally, the reviewing agency must determine if a proposed project is likely to jeopardize the existence of a listed species or a proposed listed species, or result in destruction or adverse modification of proposed or designated critical habitat for such species. FESA requires the federal government to designate “critical habitat” for any listed species, which is defined as specific areas within the geographical area occupied by the species at the time of listing if they contain physical or biological features essential to the species conservation, and those features that may require special management considerations or protection. Additionally, it includes specific areas outside the geographical area occupied by the species if the regulatory agency determines that the area itself is essential for conservation.

USFWS and/or NMFS must authorize projects where a federally listed species is present and likely to be affected by an existing or proposed project. Generally, terrestrial and freshwater fish species are under the jurisdiction of USFWS, while marine and anadromous fish species are under the jurisdiction of NMFS. Project authorization may involve a letter of concurrence that the project will not result in the take of a listed species, or a Biological Opinion that describes what measures must be undertaken to minimize the likelihood of an incidental take. Projects determined by USFWS and NMFS to jeopardize the continued existence of a species cannot be approved under a Biological Opinion. Take that is incidental to the lawful operation of a project is permitted under Section 10(a) through approval of a habitat conservation plan (HCP), where a federal agency is not authorizing, funding, or carrying out the project.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) regulates and prohibits taking, killing, possessing, harming, or trading in migratory birds. The Act addresses whole birds, parts of birds, and bird nests and eggs. This international treaty for the conservation and management of bird species that migrate through one or more countries is enforced in the United States by the USFWS.

Clean Water Act

The objective of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of waters of the United States (as defined in the Code of Federal Regulations: 33 CFR 328.3[a]). Section 401 of the Act (33 U.S.C. 1341) prohibits the discharge of any pollutant into waters of the United States. Project applicants for a federal license or permit to conduct activities including, but not limited to, the creation or operation of facilities, which may result in discharge into waters of the United States, must obtain certification that the project would not violate applicable effluent limitations and water quality standards. Section 404 of the Act (33 U.S.C. 1344) requires a federal license or permit from the U.S. Army Corps of Engineers prior to the discharge of dredge or fill material into waters of the United States, unless activity is exempt from Section 404 permit requirements. Permit applicants must demonstrate that they have attempted to avoid or minimize impacts on the resource; however, if no further minimization of impacts is possible, the applicant is required to mitigate remaining impacts on all federally regulated waters of the United States. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards are responsible for the protection of water quality.

State

The following state regulations pertaining to biological resources would apply to the proposed project.

California Endangered Species Act

The California Endangered Species Act (CESA) and Section 2081 of the California Department of Fish and Game Code identifies measures to ensure state-listed species and their habitats are conserved, protected, restored, and enhanced. The Act requires permits from the CDFW for activities that could result in the take of a state-listed threatened or endangered species. “Take” is defined as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86). Section 2080 of the Fish and Game Code prohibits the take of state-listed plants and animals unless otherwise permitted under Sections 2080.1, 2081, and 2835. Section 20814(b) affords CDFW the authority to issue permits for incidental take for otherwise lawful activities. To authorize an incidental take, the impacts of the take must be minimized and fully mitigated. Issuance of incidental take permits may not jeopardize the continued existence of a state-listed species. For species listed as threatened or endangered under FESA, CDFW may rely on a federal incidental take statement or permit to authorize an incidental take under CESA.

The California Fish and Game Commission maintains a list of threatened and endangered species (Fish and Game Code Section 2070). The California Fish and Game Commission maintains two additional lists: a Candidate species list, which identifies species under review for addition to either the endangered or threatened species list, and a Species of Special Concern list which serves as a watch list based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value.

California Fully Protected Species and Species of Special Concern

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. California Fish and Game Code sections (fish at Section 5515, amphibians and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with “fully protected” species state that these species may not be taken or possessed at any time, and no provisions in this code or any other law shall be construed to authorize permits for the take of fully protected species. Species of Special Concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing, or they historically occurred in low numbers and known threats to their persistence currently exist. This classification is intended to elicit special consideration for these animals by the CDFW, land managers, consulting biologists, and others. Additionally, this classification is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them.

California Department of Fish and Game Code Section 3503

Birds of prey are protected in California under the Fish and Game Code Section 3503.5 (1992). Under Section 3503.5, it is “unlawful to take, possess, or destroy any birds in the order Falconiformes (diurnal birds of prey) or Strigiformes (owls) or to take, possess, or destroy any nest or egg of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Disturbance during breeding season that results in the incidental loss of fertile eggs or nestlings or otherwise leads to nest abandonment is considered “taking” by the CDFW.

California Native Plant Protection Act

The California Native Plant Protection Act (California Fish and Game Code Sections 1900–1913) and the Natural Communities Conservation Planning Act provide guidance on the preservation of plant resources. Vascular plants which have no designated status or protection under state or federal endangered species legislation, but are listed as rare or endangered by the CNPS, are defined as follows:

1. Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
2. Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
3. List 2A: Plants presumed extirpated in California, but common elsewhere
4. Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
5. Rank 3: Plants about which more information is needed – a review list
6. Rank 4: Plants of limited distribution – a watch list

Generally, plants with CRPR 1A, 1B, 2A or 2B, and 3 are considered to meet the criteria for endangered, threatened, or rare species as outlined by Section 15380 of the CEQA Guidelines. Additionally, plants listed on CNPS List 1A, 1B, or 2 also meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (CESA) of the California Fish and Game Code.

California Department of Fish and Game Code Sections 1600–1616

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would substantially alter the flow, bed, channel, or bank of streams and lakes. Such activities require a 1602 Lake and Streambed Alteration Agreement from CDFW. The California Code of Regulations defines a stream as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). The term “stream” includes rivers, creeks,

ephemeral streams, dry washes, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Removal of riparian vegetation also requires a Section 1602 Lake and Stream Alteration Agreement from CDFW.

State Water Resources Control Board

The SWRCB administers Section 401 of the Clean Water Act which requires that an applicant for a Section 404 permit first obtain a certification, or waiver thereof, that the project will not violate applicable state water quality standards. The authority to either grant certification or waive the requirement for certification has been delegated by the SWRCB to nine regional boards, including, in Sonoma County the North Coast Regional Water Quality Control Board. The SWRCB protects all waters of the state, but has special responsibility for isolated wetlands and headwaters. These water bodies have high resources value but are vulnerable to filling and may lack regulation by other programs. Projects that require a U.S. Army Corps of Engineers permit, or fall under other federal jurisdiction, and have the potential to impact waters of the state are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge of harmful substances to waters of the state, the water boards have the option to regulate such activities under its state authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

Local

The following local/regional regulations pertaining to biological resources would apply to the proposed project.

General Plan

The following policies from the Open Space and Resource Conservation Element of the *Sonoma County 2020 General Plan* (County of Sonoma 2008) are relevant to the proposed project:

Biotic Resources

Objective OSRC-7-1 Identify and protect native vegetation and wildlife, particularly occurrences of special status species, wetlands, sensitive natural communities, woodlands, and areas of essential habitat connectivity.

Objective OSRC-7.3 Establish development guidelines to protect designated Biotic Habitat Areas and assure that the quality of these natural resources is maintained.

Policy OSRC-7o Encourage the use of native plant species in landscaping. For discretionary projects, require the use of native or compatible non-native species for landscaping where consistent with fire safety. Prohibit the use of invasive exotic species.

Policy OSRC-7p Support voluntary programs for habitat restoration and enhancement, hazardous fuel management, removal and control of invasive exotics, native plant revegetation, treatment of woodlands affected by Sudden Oak Death, use of fencerows and hedgerows, and management of biotic habitat.

Riparian Corridors

Policy OSRC-8f Develop and/or adopt, where appropriate, revised streamside specific standards, guidelines, and/or best management practices that provide for protection of Riparian Corridors by watershed, stream, or other geographic areas. Once adopted, the revised standards would replace the standards that are in effect at the time.

Policy OSRC-8m Apply the SCWA [Sonoma County Water Agency] Flood Control Design Criteria creek setback to development along streams where necessary to protect against streambank erosion.

Reduction of Soil Erosion

Policy OSRC-11e Retain natural vegetation and topography to the extent economically feasible for any discretionary project improvements near waterways or in areas with a high risk of erosion as noted in the Sonoma County Soil Survey.

The Bennett Valley Area Plan

The project area is located within the boundary of the Bennett Valley Area Plan. Originally adopted in 1979 and last modified in 2011, the Bennett Valley Area Plan is consistent with the current Sonoma County General Plan. The following policies are relevant to the proposed project:

Conservation (Resources)

- 2) A feeling of open space is a vital component of rural character in Bennett Valley.
 - a. Open vistas shall be protected.

- b. Development patterns and specific development shall be in harmony with natural surroundings, including, but not limited to topography and vegetation.
- 2. Planting of native vegetation should be encouraged to screen existing development from the road.
- 3) Maintain designated critical open space areas.
 - a. Prohibit structures in riparian corridors and unique biotic features as mapped in the Open Space Plan.
 - b. Site and design structures in harmony with natural surroundings.

Sonoma County Code of Ordinances

County of Sonoma Tree Ordinance

The Tree Protection and Replacement Ordinance (No. 4014) of the Sonoma County Code sets preservation and protection standards for protected trees with a 9-inch or greater diameter at breast height.

Riparian Corridor Combining Zone

In November 2014, the Board of Supervisors adopted Ordinance 6089 establishing the Riparian Corridor (RC) Combining Zone. The RC combining zone was established to protect biotic resource communities, including critical habitat areas within and along riparian corridors, for their habitat and environmental value, and to implement the provisions of the General Plan Open Space and Resource Conservation and Water Resources Elements. The RC Combining Zone is applied to designated streams and includes the stream bed and bank and an adjacent streamside conservation area on each side of the stream as measured from the top of the higher bank. Except as allowed by Section 26-65-040 or through an exception as outlined in Section 26-65-030, grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots are prohibited within any stream channel or streamside conservation area. Grazing and similar agricultural production, not involving cultivation or structures, and livestock control fencing and watering facilities are allowed, provided that they are conducted and maintained in compliance with agricultural best management practices (BMPs) developed or referenced by the Agricultural Commissioner, or defined in a farm or ranch water quality plan acceptable to the Agricultural Commissioner.

Grading, Drainage, and Vineyard Site Development Code

Chapter 11 of the Sonoma County Code includes regulations and requirements covering grading, drainage, and vineyard and orchard site development, the vineyard and orchard site development portion of which is known as VESCO. Grading for development is overseen by Sonoma County Permit and Resource Management Department, and VESCO is overseen by the Sonoma County

Agricultural Commissioner. The purpose of the chapter is to regulate grading, drainage improvement, and vineyard and orchard site development within the unincorporated area of the county, and to establish ministerial standards for those activities that:

- A. Minimize hazards to life and property;
- B. Protect against soil loss, and the pollution of watercourses with soil and other pollutants;
- C. Protect the safety, use, and stability of public rights-of-way and watercourses;
- D. Protect watercourses from obstruction, and protect life and property from the deleterious effects of flooding;
- E. Protect against the destruction of human remains and archaeological resources;
- F. Protect streams, lakes, ponds, and wetlands; and
- G. Promote water conservation.

The County has adopted standards which include BMPs for stormwater control, standards for soil and pollutant discharges, and standards for setbacks from streams, wetlands, lakes, and ponds for grading, vineyard, and orchard site development in Section 11.16.130 through Section 11.16.150 of the code. The distances for these setbacks vary based on several factors including the type of activity, stream type, soil type, natural slope of the site, and the type of wetland. Growers planting new vineyards or orchards are required to comply with BMPs as established in the Agricultural Commissioner's BMP guidelines.

Building Code

Sonoma County Code Section 7-14.5 establishes setbacks for structures requiring a building permit. New or relocated structures shall be set back from streams, as measured from the toe of the stream bank outward, a distance of two and one-half (2.5) times the height of the stream bank plus 30 feet, or 30 feet outward from the top of the stream bank, whichever distance is greater, unless a greater distance is established in the general plan, local coastal program, and/or zoning code. Exceptions to the setback may be approved by the chief building official as outlined in the code.

3.4.3 Impacts and Mitigation Measures

3.4.3.1 Significance Criteria

The significance criteria for this biological resources impact analysis are adapted from the CEQA Guidelines, Appendix G. Based on the guidelines, impacts to biological resources resulting from the proposed project would be considered significant if the proposed project would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional

plans, policies, or regulations, or by CDFW, National Marine Fisheries Service (NMFS), or USFWS;

2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW, NMFS, or USFWS;
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
6. Conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan.

3.4.3.2 Impact Discussion

Impact BIO-1: The project would have a substantial adverse effect either directly or through the modification of suitable habitat, on sensitive bird and bat species, California red-legged frog, and western pond turtle. This would be a significant impact.

While a number of special-status plant species are known or have the potential to occur in the project vicinity, none are expected to occur on the project site. No evidence for presence of any special-status plant species was found based on surveys, present habitat associated with the proposed project, historic use, and vegetation observed on or near the project footprint (Google Earth 1993). The proposed project activities are not expected to impact special-status plant species, either directly or through habitat modifications based on lack of habitat required for their presence and the historical use of the project site.

A number of special-status animal species have the potential to occur on the project site. However, few are expected to occur within the limits of the proposed winery development site due to the existing level of disturbance from residential and agricultural activities. The surveys conducted on the project site found no evidence of the presence of special-status animal species.

Although no special-status bird species were observed on the project site during surveys, suitable habitat for nesting birds and raptors is present in the trees within and surrounding the proposed winery development site. The existing barn on the project site could provide some suitable

habitat for roosting bats and nesting birds. Demolition of the barn, as well as vegetation removal or other noise and vibration from construction activities, could result in direct impacts to nesting birds or roosting bats, should they be present at the time of construction. Direct impacts to nesting birds or roosting bats, if present, would be considered significant if they result in nest or roost abandonment during the breeding season.

The presence of an unnamed drainage within the northeastern portion of the property west of the proposed development site, as well as the on-site irrigation pond, and South Fork Matanzas Creek, could provide suitable habitat for California red-legged frogs. Proposed project activities associated with the farmstead and winery facilities are not anticipated to have a negative effect on the irrigation pond or potentially suitable habitat for California red-legged frogs, the surrounding upland buffer area, or California red-legged frog individuals (if present). The unnamed drainage, creek, and irrigation pond are located approximately 560 feet, 1,350 feet, and 800 feet, respectively, from the areas of greatest site disturbance. Additionally, the proposed increased crop production and livestock grazing activities, including the new milking barn, are considered relatively benign activities and would be located a sufficient distance, approximately 630 feet from the irrigation pond and surrounding buffer area; therefore, they are not expected to impact the irrigation pond and potential California red-legged frog habitat, or the species itself. Additionally, due to the distance of proposed development from the unnamed drainage and South Fork Matanzas Creek, and proposed stream setbacks, impacts to potential California red-legged frog dispersal habitat as a result of the project are not anticipated.

Increased utilization of the irrigation pond for irrigating gardens, orchards, and vineyards could potentially result in impacts to California red-legged frogs should they be present in the pond. Since the effect of water velocity varies inversely with frog tadpole size, sustained swimming in water velocities as low as 10 centimeters/second can cause tadpoles approaching metamorphosis to be displaced. Additionally, frogs may utilize upland habitat adjacent to aquatic habitat for dispersal or aestivation. It is, however, highly unlikely that California red-legged frogs would utilize the grassland habitat to the north and east of the pond due to the disturbed and arid nature of the habitat and the risk of desiccation. Impacts to these species could result if they are present in or moving through the proposed development area at the time of construction activities.

Although western pond turtle was not observed during site surveys, there is potential for this species to utilize the aquatic habitat in the irrigation pond and the surrounding uplands on the site for nesting. Impacts to these areas as a result of the project could result in potentially significant impacts to western pond turtle. Although South Fork Matanzas Creek provides marginally suitable habitat for this western pond turtle, development and ground disturbance is of sufficient distance from this feature (1,350 feet) that no impacts to this habitat are anticipated as a result of the project activities.

Mitigation

MM-BIO-1 If construction activities are scheduled to occur during the breeding season for birds (February 1 through August 31), the following measures shall be implemented to avoid potential adverse effects to nesting raptors and other special-status or nesting birds:

- Preconstruction surveys by a biologist of all potential nesting habitats within 500 feet of the construction activities, where accessible, shall be conducted by a qualified biologist. Surveys shall occur no more than 14 days prior to the initiation of disturbance.
- If active nests are found during preconstruction surveys, a no-disturbance buffer shall be created around active nests during the breeding season or until it is determined that all young have fledged. The buffers shall be established by the biologist in conjunction with the California Department of Fish and Wildlife. Typical buffers may include 500 feet for raptors and 50 to 250 feet for other special-status nesting birds and song birds based on the location of the nest, the nesting species present, and types of construction activities that may cause potential nest abandonment. The perimeter of the buffer zone shall be fenced or marked with staked flagging.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required, following submittal of a survey report letter to the County.

MM-BIO-2 Prior to demolition of the barn, the applicant shall hire a qualified bat and bird specialist to conduct a pre-demolition survey during the time when bats or birds would be expected to be present and active (i.e., spring) to determine the presence of roosting bats or nesting birds. If no evidence exists that either bats are roosting or birds are nesting in the barn, then no further mitigation is required.

MM-BIO-3 If roosting bats or nesting birds are determined to be present, the applicant shall provide for a replacement roosting facility, in the form of either a bat house or several bat boxes, immediately adjacent to the barn, to the extent feasible. Based on recommendation from a bat and bird specialist, appropriate exclusion devices shall be installed to prevent roosting bats and nesting owls from being in the facility when demolition occurs. The replacement roosting facility shall be monitored weekly during the first month after installation and then once every 3 months until activities are completed to document bat utilization.

MM-BIO-4 The project shall be subject to County Code Section 7-14.5 Stream setback for structures requiring a building permit, as well as to County Code Section 11.16.130 setback for streams, Section 11.16.140 for ponds, and County Code Chapter 26, Article 65 RC Riparian Corridor Combining Zone.

For the unnamed drainage along the western side of the construction area, a setback line shall be established 30 feet from the top of the bank using construction fencing “NOTE ON SITE PLAN”: Structures, roads, utility lines, parking lots, lawns, agricultural uses (planting, grazing, etc.), grading, fill, and excavation shall be prohibited in this conservation area. [An exception to this prohibition may be approved with a use permit if a conservation plan is adopted that provides for the appropriate protection of the biotic resources, water quality, floodplain management, bank stability, groundwater recharge, and other applicable riparian functions. Off-site mitigation shall be considered only where on-site mitigation is infeasible or would provide superior ecological benefits, as determined by the director.]

A streamside conservation area line shall be established 50 feet from the top of the higher bank of South Fork Matanzas Creek. NOTE ON SITE PLAN: Grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots shall be prohibited within this conservation area except as allowed by Section 26-65-040.

A setback of at least 50 feet from the high water mark of the irrigation pond shall be established prior to ground disturbance.

The development plans shall present the setbacks associated with each of the county code sections detailed above. The development plans shall be subject to review and approval by the Grading & Storm Water Section, the Building Division, and/or the Planning Division of the Permit and Resource Management Department prior to the issuance of any building or grading permits.

MM-BIO-5 The following measures shall be implemented to protect potential special-status amphibian and reptile species, aquatic habitat, and overland migration or aestivation habitat:

- Based on the availability of suitable upland habitat surrounding the pond, a buffer area of 75 feet shall be established to provide sufficient refugia for frogs around the perimeter of the irrigation pond. This buffer distance shall be sufficient to maintain the essential features of the pond habitat (Fellers and Kleeman 2007). Vegetation within this 75-foot buffer area shall remain in a relatively natural state (i.e., no mowing or vegetation removal, spraying, or

other ground disturbance/maintenance activities unless specified for safety and fire prevention). Additionally, the area between the pond and the South Fork Matanzas Creek in the southwestern corner of the property shall remain as grassland habitat since this is the most likely path for frogs to use when dispersing from the pond (if present). This mitigation measure does not apply to light livestock grazing in this area, as it would be an acceptable practice and would not interfere with movement of frogs to and from the pond.

- To ensure that the irrigation pond is managed to protect California red-legged frogs, water withdrawal from the pond shall not occur from December through May 1 each year to avoid stranding eggs above the water line, and to avoid entrainment of tadpoles through the intake water structure at the eastern end of the pond. Additionally, the intake pipe shall be fitted with a passive intake screen (with a mesh size of 0.25 inch) that allows withdrawal of water at a low, uniform velocity.
- Prior to initiation of construction, a qualified biologist shall conduct a training session for all construction personnel. The training shall include a physical description of California red-legged frog and western pond turtle, their habitats, general measures that are being implemented for their protection, and what to do in the event one of these species is discovered in the construction area.
- Prior to initiation of ground-disturbing activities, a qualified biologist shall conduct preconstruction surveys for the presence of special-status amphibian or reptile species. Burrows that may provide potential aestivation habitat for California red-legged frog shall be scoped.
- Ground-disturbing activities shall only be conducted during dry conditions (primarily between July 1 and October 31), no more than 48 hours prior to or after a rain event.
- If at any time during preconstruction surveys or construction of the project a special-status amphibian or reptile is discovered, construction shall be halted and the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife shall be consulted.

Significance of Impact After Mitigation

Implementation of mitigation measures MM-BIO-1 through MM-BIO-3 would ensure that potential impacts to nesting birds and roosting bats from project demolition and construction are reduced to **less than significant**.

Implementation of mitigation measures MM-BIO-4 and MM-BIO-5 would establish protections on the intake structure in the pond and a buffer zone during construction of the project to reduce the potential for impacts on special-status amphibian and reptile species, as well as associated upland and riparian habitat, to **less-than-significant** levels. Any potential off-site water quality impacts to aquatic habitats that could support special-status species would be reduced to **less than significant** with the use of standard erosion control measures and construction BMPs required by MM-HYD-1 (refer to Section 3.7, Hydrology and Water Quality).

Impact BIO-2: The project would have the potential to indirectly affect riparian habitat. This would be a significant impact.

An unnamed drainage runs along the northeastern property boundary close to the area where a new driveway and the new winery building are proposed. Additionally, South Fork Matanzas Creek flows through the southwest portion of the project site. There is potential for sedimentation to occur in the unnamed drainage and creek as a result of surface water runoff during construction, which could result in a significant impact. However, grading and land disturbance would be required to be set back a minimum of 30 feet from the top of the unnamed drainage bank and a minimum of 50 feet from South Fork Matanzas Creek, as mandated by MM-BIO-4. Additionally, any potential runoff from construction areas would be prevented by the use of standard erosion control measures and construction BMPs (refer to MM-HYD-1 in Section 3.7, Hydrology and Water Quality).

Mitigation

See MM-BIO-4 and MM-HYD-1.

Significance of Impact After Mitigation

Implementation of the MM-BIO-4 and MM-HYD-1 would reduce potential impacts to riparian habitat to **less-than-significant levels**.

Impact BIO-3: The project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. This would be a potentially significant impact.

The proposed development site does not support any potentially jurisdictional wetlands or other waters. The on-site irrigation pond is man-made and located approximately 800 feet from the existing buildings and areas where new construction is proposed. The irrigation pond is hydrologically separated from the drainages on site and may be considered an isolated agricultural water body. It is not anticipated that this pond is jurisdictional under Section 404 of the Clean

Water Act. As described above, an unnamed drainage runs along the northeastern property boundary, and the South Fork Matanzas Creek flows through the southwest portion of the project site. There is potential for impacts to these creeks as a result of surface water runoff during construction, but these impacts would not be significant with the proposed mitigation.

Mitigation

See MM-BIO-4.

Significance of Impact After Mitigation

Implementation of the stream corridor protections outlined in MM-BIO-4 would ensure impacts to streams and their associated riparian and wetland habitat would remain **less than significant**.

Impact BIO-4: The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. This would result in no impact.

The project site is not a regional migratory wildlife corridor. The nearest designated migratory wildlife corridor, Sonoma Creek, is located approximately 5 miles east of the project site (CDFW 2016). Drainages on the project site, however, provide avenues for local species migration. The Biological Assessment prepared by Kjeldsen (Appendix D) states that there is no evidence that the addition of the buildings to the existing farm complex would interfere with wildlife movement. In addition, the proposed milking barn would be situated approximately 630 feet from the irrigation pond and outside of the stream corridor of the unnamed drainage and South Fork Matanzas Creek. Thus, passage of wildlife across the site would not be restricted by any physical barriers associated with the proposed project. There is the potential for the proposed project to interfere with local species migration, but these impacts would not be significant with mitigation.

Mitigation

See MM-BIO-4.

Significance of Impact After Mitigation

Implementation of MM-BIO-4 would require buffers around on-site stream corridors that would reduce potential impacts to wildlife migration to **less than significant**.

Impact BIO-5: The project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. This would be a potentially significant impact.

The County's Tree Protection Ordinance protects a variety of native trees. The proposed project does not include significant tree removal. A single, small coast live oak would be removed, and no additional trees would be disturbed as a result of this project. The Tree Protection Ordinance applies only to trees with a 9-inch or greater diameter at breast height. The small coast live oak that would be removed is not large enough to require protection under this ordinance. The County of Sonoma General Plan 2020, Bennett Valley Area Plan, and Sonoma County Zoning Regulations provide protection and conservation of biological resources within the County's jurisdiction. These planning documents define policies to meet goals and objectives for protecting biological resources (discussed in Section 3.4.2, Regulatory Framework, above). Construction could conflict with some of these goals, policies, and objectives, resulting in a potentially significant impact prior to mitigation.

The County has also established the RC combining zone to protect biotic resource communities within and along riparian corridors. The RC Combining Zone limits activities such as grading, vegetation removal, and agricultural cultivation, and prohibits structures, roads, utility lines, and parking lots within any stream channel or streamside conservation area. Grazing and similar agricultural production, not involving cultivation or structures, and livestock control fencing and watering facilities are allowed, provided that they are conducted and maintained in compliance with agricultural BMPs developed or referenced by the Agricultural Commissioner, or defined in a farm or ranch water quality plan acceptable to the Agricultural Commissioner. As discussed in the stream setbacks described in MM-BIO-4, no activities are proposed within the riparian corridor combining zone.

Mitigation

See MM-BIO-1 through MM-BIO-5, and MM-HYD-1.

Significance of Impact After Mitigation

Implementation of mitigation measures MM-BIO-1 through MM-BIO-5 and incorporation of BMPs described in MM-HYD-1 would ensure that any potential adverse effects of the proposed project on biological resources protected by local policies and ordinances would be reduced to **less-than-significant** levels.

Impact BIO-6: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. This would result in no impact.

HCPs and Natural Community Conservation Plans (NCCPs) are site-specific plans to address effects on sensitive species of plants and animals. There are very few HCPs in Sonoma County, and they would only affect certain land in timber production areas in the northwest county (for

spotted owl (*Strix occidentalis*) and in the lower Petaluma River/Sonoma Creek watershed (for saltmarsh harvest mouse (*Reithrodontomys raviventris*), black rail (*Laterallus jamaicensis coturniculus*), and Ridgway's rail (*Ralus obsoletus obsoletus*)). The project site is not located in an area subject to an adopted HCP or NCCP. Therefore, the project has no impact related to conflict with an adopted HCP or NCCP.

Mitigation

No mitigation measures are required.

3.4.3.3 Cumulative Impacts

Impact BIO-7: The project would not contribute to cumulative impacts with respect to biological resources. This would be a less-than-significant impact.

The effects of the proposed project, when considered with other projects in the region, would not result in a cumulative impact to biological resources. The project footprint is located within an area that has been previously developed for residential and agricultural purposes and would not result in the reduction of available habitat, migration corridors, or other essential elements required by special-status species in the region.

Mitigation

No mitigation measures are required.

3.4.4 References

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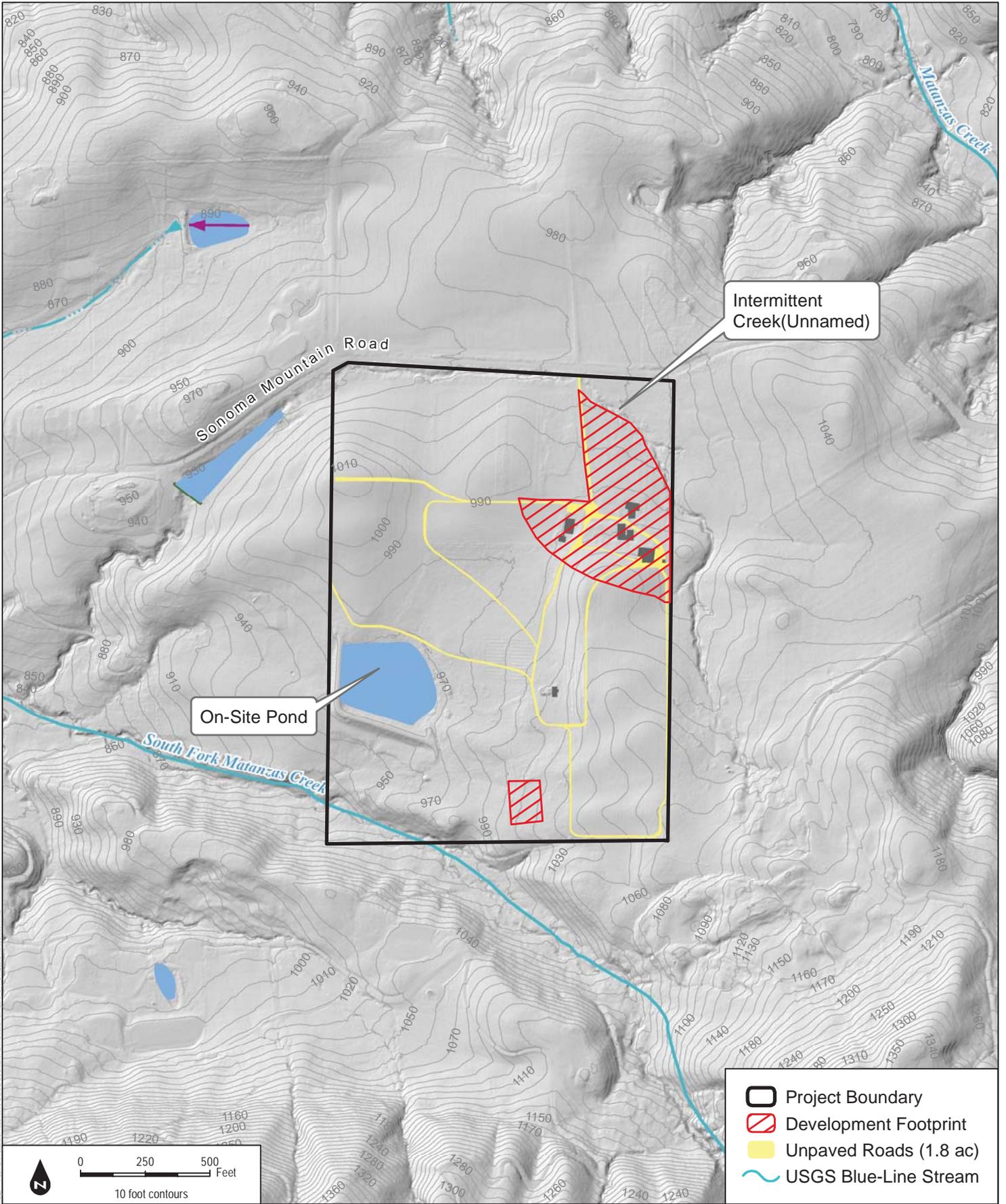
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Intermittent
Creek(Unnamed)

On-Site Pond

- Project Boundary
- Development Footprint
- Unpaved Roads (1.8 ac)
- USGS Blue-Line Stream

0 250 500 Feet
10 foot contours

SOURCE: UNM and NASA 2013, USGS 2015

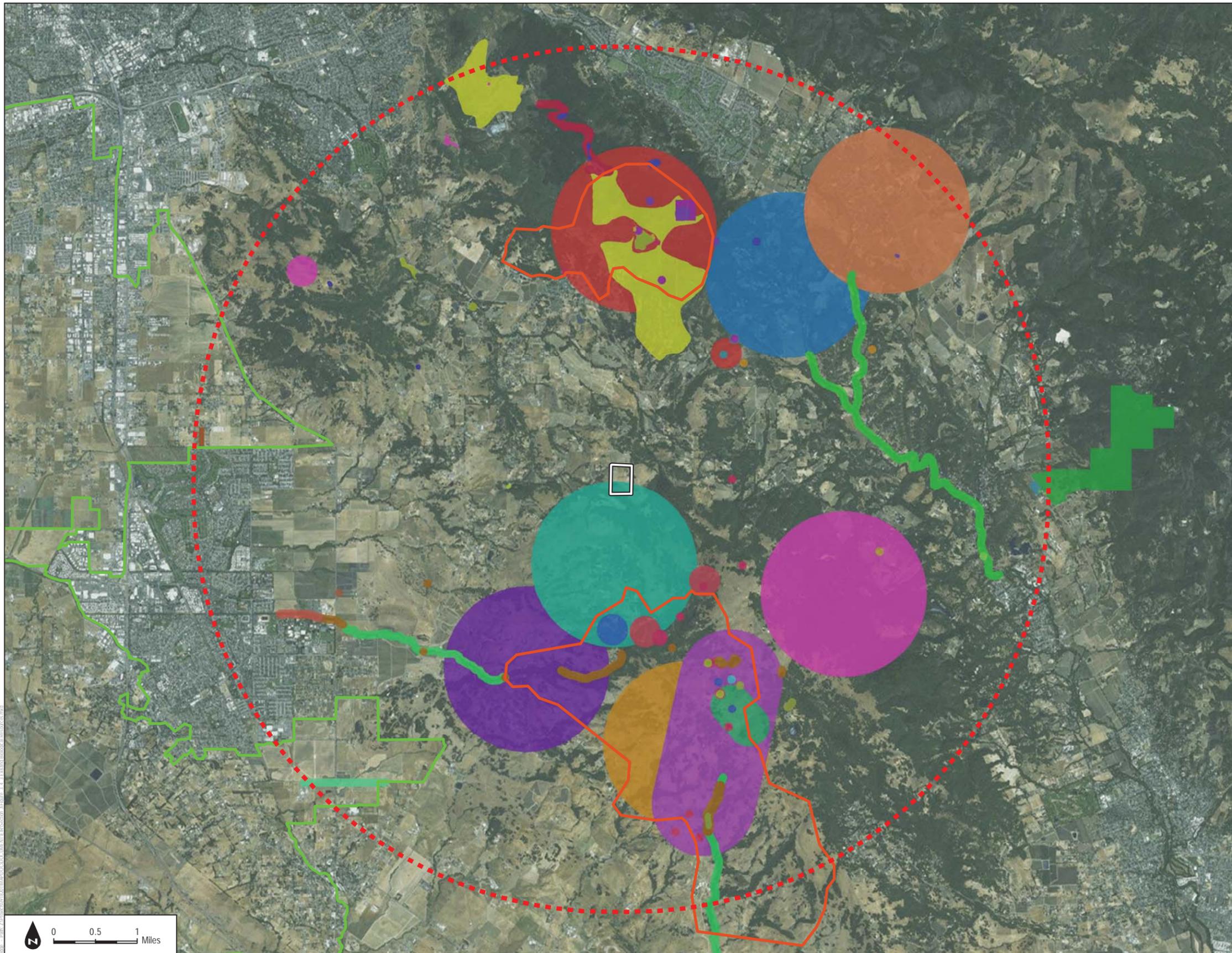
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Belden Barns Farmstead & Winery Draft EIR

FIGURE 3.4-2
Aquatic Resources

File: 61102116 - Last saved by: cshapiro Date: 2/1/2016 10:41:11 AM Project: Belden Barns Farmstead & Winery Draft EIR Figure 3.4-2 Aquatic Resources.mxd

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- Federal Critical Habitat**
 Common Name, Species Name
 California Red-legged frog, *Rana aurora californica*
 California tiger salamander, *Ambystoma californiense*
- CNDDDB Occurrence**
 Common Name, Species Name
 American badger, *Taxidea taxus*
 Baker's navarretia, *Navarretia leucocephala ssp. bakeri*
 Burke's goldfields, *Lasthenia burkei*
 California freshwater shrimp, *Syncaris pacifica*
 California giant salamander, *Dicamptodon ensatus*
 California horned lark, *Eremophila alpestris actia*
 California red-legged frog, *Rana draytonii*
 California tiger salamander, *Ambystoma californiense*
 Calistoga ceanothus, *Ceanothus divergens*
 Franciscan onion, *Allium peninsulare var. franciscanum*
 Jepson's leptosiphon, *Leptosiphon jepsonii*
 Kenwood Marsh checkerbloom, *Sidalcea oregana ssp. valida*
 Leech's skyline diving beetle, *Hydroporus leechi*
 Napa false indigo, *Amorpha californica var. napensis*
 North Coast semaphore grass, *Pleuropogon hooverianus*
 Northern Vernal Pool, Northern Vernal Pool
 Ricksecker's water scavenger beetle, *Hydrochara rickseckeri*
 Sebastopol meadowfoam, *Limnanthes vinculans*
 Sonoma alopecurus, *Alopecurus aequalis var. sonomensis*
 Sonoma ceanothus, *Ceanothus sonomensis*
 Sonoma sunshine, *Blennosperma bakeri*
 Tomales isopod, *Caecidotea tomalensis*
 Valley Needlegrass Grassland, Valley Needlegrass Grassland
 Yuma myotis, *Myotis yumanensis*
 big-scale balsamroot, *Balsamorhiza macrolepis*
 burrowing owl, *Athene cunicularia*
 dwarf downingia, *Downingia pusilla*
 ferruginous hawk, *Buteo regalis*
 foothill yellow-legged frog, *Rana boylei*
 fragrant fritillary, *Fritillaria liliacea*
 fringed myotis, *Myotis thysanodes*
 golden eagle, *Aquila chrysaetos*
 grasshopper sparrow, *Ammodramus savannarum*
 legenera, *Legenera limosa*
 long-legged myotis, *Myotis volans*
 narrow-anthered brodiaea, *Brodiaea leptandra*
 pallid bat, *Antrozous pallidus*
 steelhead - central California coast DPS, *Oncorhynchus mykiss irideus*
 tricolored blackbird, *Agelaius tricolor*
 two-fork clover, *Trifolium amoenum*
 western pond turtle, *Emys marmorata*
 western yellow-billed cuckoo, *Coccyzus americanus occidentalis*
 5 mile buffer
 Project Boundary



FIGURE 3.4-3
 Existing Biological Resources

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3.5 GEOLOGY AND SOILS

This section describes the existing geology and soils setting of the project site and vicinity, identifies associated regulatory requirements, evaluates potential project level and cumulative impacts, and identifies mitigation measures related to implementation of the Belden Barns Farmstead and Winery project (proposed project).

3.5.1 Environmental Setting

This section describes the existing conditions in the project area based on a site-specific geological evaluation by Reese & Associates Consulting Engineers conducted in 2013 (Appendix E), published geologic maps and reports, and online resources.

Topography

The project site consists of a 55-acre rectangular parcel of land located on the northwest flanks of Sonoma Mountain and the southern part of the Bennett Valley. The property begins along the south side of Sonoma Mountain Road and extends to the south for a distance of about 1,850 feet. The proposed development is located within the northeast portion of the property within very gently sloping terrain. Further south, the property ascends a series of low, hummocky knolls planted with vineyards. Based on review of high resolution topographic data, elevations on the property extend from a high of 1,070 feet above mean sea level (amsl) in the southeastern corner to a low of 910 feet amsl in the southwestern corner along the south fork of Matanzas Creek (UNM and NASA 2013). The majority of the site ranges in elevation from 950 to 1,020 feet amsl with slope gradients of less than 10%, though parts of the southern, southeast, and northwest portions of the parcel have slope gradients between 10% and 50% (UNM and NASA 2013).

Geology and Soils

Published maps indicate the property is underlain by the poorly consolidated sedimentary rocks of the Pliocene-age Petaluma Formation (Appendix E). Site reconnaissance performed by Reese & Associates confirmed the presence of Petaluma Formation rock materials beneath a relatively thin cover of soil on the site, and identified the location and extent of landslide deposits and colluvium, shown in Figure 3.5-1 (Appendix E). According to Appendix E, the Petaluma Formation on the project site consists predominantly of weak mudstone, claystone, and minor amounts of friable sandstone. The site-specific reconnaissance is consistent with regional maps and studies, which describe the Petaluma Formation as dominated by fine-grained materials, consisting of clay, shale, and sandstone with minor amounts of conglomerate (USGS 2007, Kleinfelder 2003). The Petaluma deposits are folded, and in the project vicinity, they are generally in fault contact (but not at the project site) with rocks of the older Sonoma Volcanics, which outcrop south of the project site. Additional information on the geologic units and stratigraphy underlying the site is provided

in Appendix F, Groundwater Resources Technical Report. The landslides mapped on site are discussed in further detail under the Geologic Hazards section.

Overlying the geologic units described above is a mantle of soil that varies in thickness and character. In general, soil characteristics are strongly governed by slope, relief, climate, vegetation, and the geologic unit upon which they form. Soil types are important in describing engineering constraints such as susceptibility to soil erosion (from both water and wind), corrosion risks, and various behaviors that affect structures, such as expansion and settlement. The type, aerial extent, and some key physical and hydrological characteristics of soils within proposed project parcel were identified based on a review of a soil survey of Sonoma County completed by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (USDA 2015). Soil units are described in Table 3.5-1. The creamery and winery facility, and the farmstead and wine tasting room would be located predominantly within the Spreckels loam, though a portion of the winery facility would be within the Goulding cobbly clay loam.

Table 3.5-1
Soil Types within the Proposed Project Parcel

Soil Unit	Acres / Percent of Project Area	Depth (inches)	Shrink/Swell Potential ¹	Corrosion Risk ²		Erosion and Runoff	
				Uncoated Steel	Concrete	Hydrologic Soil Group ³	Erosion Factor (Kf) ⁴
Spreckels loam, 9% to 15% slopes	36.8 (67%)	37	Low - High	High	Moderate	D	0.28-0.37
Goulding cobbly clay loam, 5% to 15% slopes	12.8 (23%)	20	Low	Moderate	Low	C	0.24-0.32
Spreckels loam, 15% to 30% slopes	2.1 (4%)	37	Low - High	High	Moderate	D	0.28-0.37
Goulding clay loam, 30% to 50% slopes	1.2 (2%)	18	Low - Moderate	Moderate	Low	D	0.24-0.32
Water	2.1 (4%)	—	—	—	—	—	—

Source: USDA 2015.

Notes:

- ¹ "Shrink/Swell potential" of soils pertains to the volume change experience by soils, particularly clays, under cycles of wet and dry conditions. This is measured by the linear extensibility of soils, or the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The shrink/swell potential is low if the soil has a linear extensibility of less than 3%; moderate if 3% to 6%; high if 6% to 9%; and very high if more than 9%. The ratings reported in this table refer to the range of soil horizons present within the soil map unit.
- ² "Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete.
- ³ Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups (A through D) according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. Soils in Group B have a moderate infiltration rate and a moderate rate of water transmission. Soils in Group C have a slow infiltration and transmission rates and consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. Soils in Group D have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.
- ⁴ Erosion factor Kf indicates the susceptibility of a soil to sheet and rill erosion by water. Values of Kf range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Potential Geologic Hazards

Regional Faulting and Seismic Hazards

The project site is within the California Coast Ranges, a region of high seismic activity. Numerous moderate and occasional large magnitude earthquakes have historically affected this region. Notable earthquakes that have caused major damage to Santa Rosa include the magnitude 7.9 California Earthquake of 1906 on the San Andreas fault (21 miles southwest of the site) and the 1969 Santa Rosa earthquakes on the Rodgers Creek fault (Appendix E). The 1969 earthquakes were of moderate magnitude with earthquake epicenters located near downtown Santa Rosa. A magnitude 6.0 earthquake along the West Napa Fault on August 24, 2014, caused strong to very strong ground shaking in the Napa region with significant damage, though it is estimated to have caused light to moderate perceived ground shaking at the project site, with very light to no damage potential (USGS 2014). Prior to the West Napa earthquake, the portion of the fault that ruptured in that quake was not widely known to be Holocene-active, nor was it zoned under the Alquist–Priolo Earthquake Fault Zoning Act. In addition to the San Andreas and Rodgers Creek faults, several other faults in the region including the Green Valley (22.5 miles to the northeast) and the West Napa (13 miles northeast) are considered capable of generating moderate to large earthquakes (Appendix E).

Fault Rupture: The Alquist–Priolo (AP) Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called “earthquake fault zones,” around the surface traces of active faults and published maps showing these zones. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. A review of the Alquist–Priolo Earthquake Fault maps shows that no element of the proposed project would be located within a currently established Alquist–Priolo fault zone (California Department of Conservation 1983). According to Appendix E, the closest active fault to the proposed project is the Rodgers Creek fault, located approximately 1.9 miles southwest of the project site. Review of the Quaternary¹ Fault and Fold Database of the United States further confirms the lack of Quaternary-aged faults on the site. The closest Quaternary-aged faults to the site are the Bennett Fault, located approximately 0.7 mile to the northeast, and an unnamed fault about 1,000 feet to the south, both of which mark the surface contact between rocks of the Sonoma Volcanics (which make up the higher terrain) and the Petaluma Formation (USGS and CGS 2015). Both these faults are older Quaternary faults lacking any evidence of surface displacement within Holocene epoch², and thus are not considered active.

¹ The Quaternary Period is a geologic time period that encompasses the most recent 2.6 million years.

² The Holocene Epoch encompasses the most recent 10,000 years within the Quaternary period.

Ground Shaking: The major faults in the region are the San Andreas, Rodgers Creek, Green Valley, and West Napa Faults. The project site could be subject to significant ground shaking from a major earthquake along these faults or along many other active and potentially active faults in the region. The primary tool that seismologists use to describe future ground-shaking hazards is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources and estimates their characteristic magnitudes to generate a probability map for ground shaking. The PSHA maps depict values of peak ground acceleration (PGA)³ based on various return periods and are useful because they incorporate all known sources of seismicity. Based on the PSHA, the project site is expected to have a 10% probability of exceeding a PGA of 0.547g and a 2% probability of exceeding a PGA of 0.928g in the next 50 years (California Department of Conservation 2015). A 2% probability of exceedance in 50 years is about the same as a 2,500-year average repeat time. In past earthquakes, average peak accelerations between 0.44g and 0.83g have been correlative to severe to violent perceived ground-shaking intensities and moderate to heavy structural damage (USGS 2014).

Liquefaction and Lateral Spreading: Earthquake-induced ground deformation, including liquefaction and lateral spread, occurs in unconsolidated basin deposits (i.e., silt, sand, and gravel) that are under saturated conditions. The project site is located on older, semi-consolidated rocks and clayey residual soils, and thus has a very low susceptibility to liquefaction or lateral spread. For these reasons, the site is not located within an area of liquefaction susceptibility as shown in the U.S. Geological Survey (USGS) Liquefaction Susceptibility Map of the Bay Area (USGS 2006).

Landslides/Slope Stability

A slope failure is a mass of rock, soil, and debris displaced down a slope under the influence of gravity by sliding, flowing, or falling. Several factors can affect the susceptibility of a slope to failure, including (1) steepness of the slope; (2) strength and bulk density of the soil or bedrock; (3) width, orientation, and pervasiveness of bedrock fractures, faults, or bedding planes; (4) prevailing groundwater conditions; and (5) type and distribution of vegetation. Those features, among others, are important factors that determine the predisposition of a sloped surface to fail, while external processes such as exceptionally heavy rainfall, earthquakes, or human disturbances (e.g., quarrying, road cuts, and large-scale vegetation removal) may trigger a new or reactivate an existing slope failure.

³ The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as a percentage of the constant value of acceleration due to gravity (g) (approximately 980 centimeters per second squared). For reference, 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

Through aerial photograph interpretation, on-site reconnaissance, review of relevant maps, and review of prior trenching work performed for a previous owner, Reese & Associates confirmed the presence of two landslide masses on the property (Appendix E). The first landslide appears to be a relatively old earthflow-type slide that originates near elevation 1,200 feet and extends in the northwest direction through the south and southwest portions of the property, as shown on Figure 3.5-1. The other slide appears to be a younger earthflow along the southern boundary of the property in the southwest direction away from the developed area of the site. The extent of these landslides were determined based primarily on review of previously published landslide maps, the topography of the site, and features within soil trenches that, in places, revealed evidence of transported material on top of in-place rocks. Figure 3.5-1 shows the location of the 20 test pits excavated, which helped determine the northward extent of the old landslide mass; all test pits north of the old landslide mass revealed in-place rock indicating the absence of landslide material. The estimated boundary of the landslide area as shown in Figure 3.5-1 is approximately 340 feet south of the proposed winery facility (Appendix E).

Soil Compression and Expansion

Weak porous soils can be vulnerable to considerable strength loss and settlement when subjected to loads, particularly when saturated. Expansive clays can shrink and swell with seasonal variation in moisture content and can heave and distress lightly loaded footings and slabs. Appendix E indicates on-site soils near the proposed construction consist of approximately 2 feet of weak porous soils underlain by approximately 3 feet of highly expansive clays. This is consistent with the soil survey data, which indicates that the Spreckels loam has high shrink/swell potential within its deeper soil horizons (USDA 2015).

3.5.2 Regulatory Framework

Federal

The following federal regulations pertaining to geology and soils would apply to the proposed project.

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's Excavation and Trenching standard, Title 29 of the Code of Federal Regulations, Part 1926.650, covers requirements for excavation and trenching operations. The Occupational Safety and Health Administration requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

The statewide minimum public safety standard for mitigation of earthquake hazards (as established through the California Building Code (CBC), Alquist–Priolo Earthquake Fault Zoning Act, and the Seismic Hazards Mapping Act) is that the minimum level of mitigation for a project should reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy, but in most cases, is not required to prevent or avoid the ground failure itself. It is not feasible to design all structures to completely avoid damage in worst-case earthquake scenarios. Accordingly, regulatory agencies have generally defined an “acceptable level” of risk as that which provides reasonable protection of the public safety, although it does not necessarily ensure continued structural integrity and functionality of a project (14 CCR 3721(a)). Nothing in these acts, however, precludes lead agencies from enacting more stringent requirements, requiring a higher level of performance, or applying these requirements to developments other than those that meet the acts’ definitions of “project.”

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called “earthquake fault zones,” around the surface traces of active faults and has published maps showing these zones. Earthquake fault zones are designated by the California Geological Survey and are delineated along traces of faults where mapping demonstrates surface fault rupture has occurred within the past 11,000 years. Construction within these zones cannot be permitted until a geologic investigation has been conducted to prove that a building planned for human occupancy will not be constructed across an active fault. These types of site evaluations address the precise location and recency of rupture along traces of the faults and are typically based on observations made in trenches excavated across fault traces.

The proposed project is not within an Alquist–Priolo Earthquake Fault Zone and therefore is not subject to the requirements of this act.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Section 2690–2699.6) directs the California Department of Conservation to protect the public from earthquake-induced liquefaction and landslide hazards (note that these hazards are distinct from fault surface rupture hazard regulated by the Alquist–Priolo Special Studies Zone Act of 1972). This act requires the state geologist to delineate various seismic hazard zones, and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones (i.e., zones of required investigation). Before a development permit may be granted

for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. Evaluation and mitigation of potential risks from seismic hazards within zones of required investigation must be conducted in accordance with the California Geological Survey, Special Publication 117A, adopted March 13, 1997, by the State Mining and Geology Board as updated in 2008.

To date, Seismic Hazard Zone Maps have been prepared for portions of Southern California and the San Francisco Bay Area; however, no seismic hazard zones have yet been delineated for the project area (i.e., the Glen Ellen USGS 7.5' Quadrangle). As a result, the provisions of the Seismic Hazards Mapping Act would not apply to the project.

California Building Code

The CBC has been codified in the CCR as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 to be enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2013 edition of the CBC is based on the International Building Code published by the International Code Conference. The 2013 CBC contains California amendments based on the American Society of Civil Engineers Minimum Design Standards 7-05, which provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Local

The following local/regional regulations pertaining to geology and soils would apply to the proposed project.

Sonoma County General Plan

The following policies from the Public Safety Element of the Sonoma County General Plan 2020 are relevant to the proposed project.

- PS-1a** Continue to utilize all available data on geologic hazards and related risks from the appropriate agencies.
- PS-1b** Continue to utilize studies of geologic hazards prepared during the development review process.
- PS-1f** Require and review geologic reports prior to decisions on any project which would subject property or persons to significant risks from the geologic hazards. Geologic reports shall describe the hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, require an engineer’s or geologist’s certification that risks have been mitigated to an acceptable level and, if indicated, obtain indemnification or insurance from the engineer, geologist, or developer to minimize County exposure to liability.
- PS-1g** Prohibit structures intended for human occupancy (or defined as a “project” in the Alquist–Priolo Special Studies Zones Act and related Administrative Code provisions) within 50 feet of the surface trace of any fault.
- PS-1h** Adopt, upon approval by the International Code Council (ICC) and the State of California, revisions to the Uniform Building Code which increase resistance of structures to groundshaking and other geologic hazards.

Sonoma County Code of Ordinances

Chapter 7, Building Regulations, of the Sonoma County Code of Ordinances is enacted as a result of requirements of state law and the determination that within the unincorporated area of this County, certain regulations for construction, maintenance, use, and occupancy are required to provide the minimum standards to safeguard the life, limb, and property and protect the public health, safety, and general welfare and to provide regulations and control of those factors in the physical environment which exercise or may exercise a deleterious effect on this physical development, health, and survival. The County has adopted the 2013 California Building Code, with modifications, as the basis for the County Building Regulations.

The Sonoma County Code of Ordinances includes regulations and requirements covering grading and drainage in Chapter 11, Grading, Drainage, and Vineyard and Orchard Site Development. Grading permits are covered in Article 04; permit implementation is covered in Article 14; and standards are provided in Article 16.

3.5.3 Impacts and Mitigation Measures

3.5.3.1 Significance Criteria

The significance criteria for this geology and soils impact analysis are adapted from the California Environmental Quality Act (CEQA) Guidelines, Appendix G. Based on the guidelines, geology and soil impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of as known fault. (Refer to Division of Mines and Geology Special Publication 42);
 - b. Strong seismic ground shaking;
 - c. Seismic-related ground failure, including liquefaction;
 - d. Or landslides.
2. Result in substantial soil erosion or the loss of topsoil
3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
4. Be located on potentially expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. This would be a significant impact.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

The California Supreme Court has recently confirmed that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” However, an agency must “evaluate existing conditions in order to assess whether a project could exacerbate hazards that are already present.” Certain issues identified in the significance criteria are not considered impacts of the proposed project and are discussed briefly below.

Fault Rupture Hazards

As discussed in Section 3.5-1, Environmental Setting, no faults zoned under the Alquist–Priolo Earthquake Fault Zoning Act or any other Holocene-active faults pass through the project site. Thus, there would be no impact with respect to fault rupture on the site.

3.5.3.2 Impact Discussion

Impact GEO-1: The project could expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

a. Strong seismic ground shaking. This would be a less-than-significant impact.

Seismic ground shaking is an unavoidable hazard for nearly all man-made facilities in the region. The geologic setting means proposed facilities are likely to experience ground shaking from at least one major earthquake (e.g., greater than moment magnitude 6.7) sometime during the operational life of the project. Based on the most recent PSHA for the State of California, the project site would have an approximately 10% chance of exceeding a PGA of 0.547g and a 2% chance of exceeding a PGA of 0.928g in the next 50 years. These levels of ground shaking, while relatively improbable, are severe to violent, and higher compared to many other regions in the North Bay, owing primarily to the site's proximity to the Rodgers Creek Fault. The project site is also underlain by soils that if not properly engineered during construction site preparation, could be subject to secondary effects such as seismically induced compression or settlement. As discussed in Section 3.5.1, soils underlying the project site are not anticipated to be subject to liquefaction or lateral spreading due to the characteristics of the soils and geology on site.

The proposed project would not increase or exacerbate the probability or severity of ground shaking effects experienced on site or by off-site properties. The change in use of the site from a private homestead to a winery and tasting room open to the public means the occupancy of the on-site structures would increase.

The preliminary geologic evaluation (Appendix E) provides the information necessary to adequately inform the soil conditions, geologic risks, and constraints on the project site. The landslide mapping and excavation of test pits on the site provide strong evidence that the proposed improvements are located in an area that has not been subjected to past landslides and that the slides are a sufficient distance away from the landslide limits such that no additional mitigation measures are warranted (Appendix E).

Appendix E provides initial recommendations and means to address compressible soils and expansive clays, which include using drilled piers or grade beams to support foundations, or to use slab-on-grade construction so long as undesirable soils are removed and replaced with

properly compacted, low- to non-expansive soils. Initial recommendations regarding optional foundation designs as provided in Appendix E include:

- a. **Drilled piers and grade beams.** If drilled piers and grade beams are used in conjunction with wood floors supported on joists above grade, removal of weak porous upper soils will not be needed.
- b. **Spread footing supported by properly compacted fill.** All existing porous soils must be removed to their full depth. Any expansive soils must be covered with approved on-site material of low expansion potential or imported non-expansive fill to create a moisture barrier.
- c. **Post-tensioned or mat slab foundation.** The on-grade mat foundation possesses greater stiffness, with strength to resist differential swelling, and native soils could remain in place.

In compliance with Section 1803 of the 2013 CBC, a qualified geotechnical engineer will be retained to prepare a design-level geotechnical investigation for submittal to PRMD. The geotechnical report must provide design level criteria for proposed improvements including site grading, foundation and retaining wall design, roadway pavement support, and geotechnical engineering drainage.

All construction activities are required to meet the CBC regulations for seismic safety (e.g., reinforcing perimeter and/or load bearing walls, bracing parapets, etc.). Construction plans are subject to review and approval of PRMD prior to the issuance of a building permit. All work is subject to inspection by PRMD and must conform to all applicable code requirements and approved improvement plans prior to the issuance of a certificate of occupancy.

For these reasons, the impact of the project on exposure of people or structures to strong seismic groundshaking would be less than significant.

b. Seismic-related ground failure, including liquefaction. This would be a less-than-significant impact.

The project site is not considered to be located within an area of liquefaction susceptibility based on the USGS Liquefaction Susceptibility Map of the Bay Area (USGS 2006). However, parts of the project site were identified to be underlain by weak porous soils with potential to undergo considerable strength loss and settlement when subjected to loads, particularly when saturated (Appendix E). As discussed above, a detailed design-level geotechnical investigation of the project site as required in compliance with the CBC would further refine grading, site-preparation and foundation design recommendations prior to issuance of the site grading and building permits. This would ensure potential impacts related to seismic ground failure would be addressed through standard geotechnical engineering design. The impact of the project on exposure of people or structures to seismic-related ground failure would be less than significant.

c. Landslides. This would be a less-than-significant impact.

As discussed in Section 3.5.1 and shown in Figure 3.5-1, two landslide masses have been mapped on the project site, beginning approximately 340 feet south of the creamery and winery facility, and continuing further south. The landslide closest to and upslope of the proposed facilities was determined to be an old landslide and not recently active, based on the presence of incised drainages and review of aerial photography. The slopes on site are not steep or extreme; they are predominantly less than 20%, with highly localized areas (e.g., pond berms and small drainage banks) exceeding 50%. As discussed in Section 3.5.1, 20 test pits were excavated which helped determine the northward extent of the old landslide mass. Furthermore, the proposed facilities are on a subtle topographic divide, which suggests that while unlikely, any large-scale movement of the old landslide would be more likely to follow a path toward the on-site pond and away from the proposed facilities. Based on Appendix E, no mitigation measures are warranted because the proposed facilities are judged to be located a sufficient distance (340 feet) from the landslide mass. Earlier work for a previous proposal on the property indicated that a 150-foot buffer from the limits of the suspected landslide mass is a conservative limit (Giblin Associates 2003).

The methods and analyses contained in Appendix E are adequate and appropriate for a preliminary level evaluation. As discussed above, a detailed design-level geotechnical investigation of the project site as required in compliance with the CBC would further refine grading, site-preparation, and foundation design recommendations prior to issuance of the site grading and building permits. This would ensure potential impacts related to slope instabilities would be addressed, and the impact of the project on exposure of people or structures to landslides would be less than significant.

Mitigation

No mitigation is required.

Impact GEO-2: The project could result in substantial soil erosion or the loss of topsoil. This would be a significant impact.

The potential for soil erosion and loss of topsoil is comprehensively addressed in Section 3.7, Hydrology and Water Quality, which analyzes and mitigates for the adverse effects of changes in runoff and associated erosion and sedimentation issues. Therefore, the significance conclusions and applicable mitigation measures are the same.

Mitigation

MM-HYD-1 (Final Standard Urban Stormwater Mitigation Plan)

Significance of Impact After Mitigation

Implementation of the above mitigation measures would reduce potential impacts to **less-than-significant levels**.

Impact GEO-3: The project would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. This would be a less-than-significant impact.

As indicated in Appendix E and the analysis under Impact GEO-1, the weak and potentially expansive materials underlying the project site would be unsuitable to support proposed structures without appropriate foundations. Initial recommendations of the site-specific geological evaluation (Appendix E) to address compressible soils and expansive clays include using drilled piers or grade beams to support foundations, or to use slab-on-grade construction so long as undesirable soils are removed and replaced with properly-compacted, low- to non-expansive soils. As discussed above, a detailed design-level geotechnical investigation of the project site as required in compliance with the CBC would further refine grading, site-preparation, and foundation design recommendations adequate to avoid instabilities caused by weak, compressible soils prior to issuance of the site grading and building permits. This would ensure potential impacts related to unstable geologic units or soils would be addressed, and impacts would be less than significant.

Mitigation

No mitigation is required.

Impact GEO-4: The project would be located on potentially expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994). This would be a less-than-significant impact.

As described above, under Impact GEO-1, parts of the project site were identified to be made up of weak porous soils underlain by 3 feet of highly expansive clays. Expansive clays can shrink and swell with seasonal variation in moisture content and can heave and distress lightly loaded footings and slabs. Appendix E concluded that the weak, porous natural and expansive clays would not be suitable for foundation, slab, or fill support in their present condition. Improper design under these conditions could result in unsafe conditions, although these conditions are handled pursuant to CBC section 1803. Initial recommendations of the site-specific geologic evaluation to address compressible soils and expansive clays include using drilled piers or grade beams to support foundations, or to use slab-on-grade construction so long as undesirable soils are removed and replaced with properly-compacted, low- to non-expansive soils. Compliance with CBC section 1803 would ensure the proposed structures are designed with foundations and

site-preparation practices adequate to avoid instabilities caused by weak, compressible, or landslide-prone soils, and the impact is less than significant.

Mitigation

No mitigation is required.

Impact GEO-5: The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. This would be a less-than-significant impact.

The proposed project would not be served by public sewer. The proposed project site currently has a functioning septic system in place, and preliminary documentation provided by the applicant and reviewed by the PRMD Project Review Health Specialist indicates that the soils on site would support the proposed sanitary and process wastewater management system and the required expansion area (Steve Martin Associates Inc. 2014). Impacts would be less than significant.

Mitigation

No mitigation is required.

3.5.4 Cumulative Impacts

Impact GEO-6: The project would not contribute impacts with respect to geology and soils. This would be a less-than-significant impact.

The effects of the proposed project, when considered with other projects in the region, would not result in a cumulative impact to geology and soils. The impacts of the proposed project related to geology and soils are localized and site-specific in nature. This means that other projects in the cumulative scenario, regardless of their own potential impacts related to geology and soils, would not have any impacts that would geographically overlap with those of the proposed project.

Mitigation

No mitigation is required.

3.5.5 References

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SOURCE: Reese and Associates, 2013

DUDEK

Belden Barns Farmstead & Winery Draft EIR

FIGURE 3.5-1
Site Geology and Exploratory Test Pit Locations

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3.6 GREENHOUSE GAS EMISSIONS

This section provides an analysis of the current environmental and regulatory framework related to climate change in California. Impacts related to greenhouse gases (GHGs) and climate change are analyzed and mitigation measures are provided for any potentially significant impacts.

3.6.1 Environmental Setting

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. This trapping of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

Principal GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and water vapor (H₂O). Some GHGs, such as CO₂, CH₄, and N₂O, can occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely byproducts of fossil-fuel combustion, whereas CH₄ results mostly from off-gassing associated with agricultural practices, landfills, and natural gas extraction. Other human-caused GHGs, which are produced by certain industrial products and processes, have a much greater heat-absorption potential than CO₂. They include fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃) (CAT 2006). The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the average temperature of the Earth would be about 0 degrees Fahrenheit (°F) (-18 degrees Celsius (°C)) instead of its current 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP). The GWP varies between GHGs; for example, the GWP of CH₄ is 21, and the GWP of N₂O is 310. The GWP of CO₂ is 1. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO₂. Thus, GHG

emissions are typically measured in terms of tons or metric tons (MT) of CO₂ equivalent (CO₂E).¹ This analysis uses the metric tons of CO₂E units.

Contributions to Greenhouse Gas Emissions

In 2013, the United States produced 6,673 million metric tons (MMT) of CO₂E. The primary GHG emitted by human activities in the United States was CO₂. This primary GHG represented approximately 82.5% of total GHG emissions. The largest source of CO₂, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 77% of CO₂ emissions (EPA 2015).

According to the 2013 GHG inventory data compiled by the California Air Resources Board (CARB) for the California Greenhouse Gas Inventory for 2000–2013, California emitted 459 MMT CO₂E of GHGs, including emissions resulting from out-of-state electrical generation (CARB 2015). The primary contributors to GHG emissions in California are transportation, industry, electric power production from both in-state and out-of-state sources, agriculture, and other sources, which include commercial and residential activities. These primary contributors to California’s GHG emissions and their relative contributions in 2013 are presented in Table 3.6-1, GHG Sources in California (2013).

**Table 3.6-1
GHG Sources in California (2013)**

Source Category	Annual GHG Emissions (MMT CO ₂ E)	Percent of Total ^a
Transportation	169.02	37%
Industrial Uses	92.68	20%
Electricity Generation	90.45 ^b	20%
Residential and Commercial uses	43.54	9%
Agriculture	36.21	8%
High GWP Substances	18.5	4%
Recycling and Waste	8.87	2%
Totals	459.28	100%

Source: CARB 2015.

Notes:

^a Percent of total has been rounded.

^b Includes emissions associated with imported electricity, which account for 39.99 MMT CO₂E annually.

¹ The CO₂E for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons of CO₂E = (metric tons of a GHG) × (GWP of the GHG). The California Emissions Estimator Model (CalEEMod) assumes that the GWP for CH₄ is 21, which means that emissions of 1 metric ton of CH₄ are equivalent to emissions of 21 MT of CO₂, and the GWP for N₂O is 310, based on the Intergovernmental Panel on Climate Change (IPCC) *Second Assessment Report*. The IPCC has released subsequent Assessment Reports with updated GWPs, and California Air Resources Board (CARB) reporting and other statewide documents are beginning to transition to the use of the GWPs in the IPCC *Fourth Assessment Report*. Furthermore, the use of the different GWPs will not substantially change the overall project GHG emissions, which are primarily CO₂. As such, it is appropriate to use the hardwired GWP values in CalEEMod from the IPCC *Second Assessment Report*.

The Bay Area Air Quality Management District (BAAQMD) developed a GHG inventory for the Bay Area, which determined that the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 39.7% and 35.7% of the Bay Area's 86.6 MMT CO₂E in 2011, respectively. Electricity/co-generation sources account for about 14% of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.7%. Off-road equipment and agricultural/farming sources currently account for approximately 1.5% each of the total Bay Area GHG emissions (BAAQMD 2015).

Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C (0.36°F) per decade; this was determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of approximately 0.36°F (0.2°C) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC 2007).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. Climate change is already affecting California: average temperatures have increased, which has led to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling in the form of snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a). Climate change modeling using emission rates from 2000 shows that further warming would occur, which would induce further changes in the global climate system during the current century. Changes to the global climate system and ecosystems and to California would include, but would not be limited to, the following:

- The loss of sea ice and mountain snowpack, which results in higher sea levels and higher sea surface evaporation rates, with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (IPCC 2007).
- A rise in global average sea level, primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets (IPCC 2007).
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns. These changes also include more energetic aspects of extreme weather,

including droughts, heavy precipitation, heat waves, extreme cold, and intensity of tropical cyclones (IPCC 2007).

- A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% over the next 100 years (CAT 2006).
- An increase in the number of days conducive to O₃ formation by 25% to 85% (depending on the future temperature scenario) in high-O₃ areas of Los Angeles and the San Joaquin Valley by the end of the twenty-first century (CAT 2006).
- A high potential for erosion of California’s coastlines and seawater intrusion into the delta and levee systems due to the rise in sea level (CAT 2006).

3.6.2 Regulatory Framework

Federal

Massachusetts v. U.S. Environmental Protection Agency. On April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency*, the U.S. Supreme Court directed the U.S. Environmental Protection Agency (EPA) administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The elevated concentrations of GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the “endangerment finding.”
- The combined emissions of GHGs—CO₂, CH₄, N₂O, and hydrofluorocarbons—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the “cause or contribute finding.”

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following to aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel by 2022.

2. Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances

EPA and NHTSA Joint Final Rule for Vehicle Standards. On April 1, 2010, the EPA and NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016 (EPA 2010). The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA approved the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA approved Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act (75 FR 25324–25728). The final rule became effective on July 6, 2010.

The EPA’s GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016, which is equivalent to 35.5 mpg if the automotive industry were to meet this CO₂ level through fuel economy improvements alone. The Corporate Average Fuel Economy standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg (75 FR 25324–25728). The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers.

In August 2012, the EPA and NHTSA approved a second round of GHG and Corporate Average Fuel Economy standards for model years 2017 and beyond (77 FR 62624–63200). These standards will reduce motor vehicle GHG emissions to 163 grams of CO₂ per mile, which is equivalent to 54.5 mpg if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through reductions in air conditioning leakage and through use of alternative refrigerants, which would not contribute to fuel economy. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel-cell vehicles.

- Incentives for hybrid technologies for large pickup trucks and for other technologies that achieve high fuel economy levels on large pickup trucks.
- Incentives for natural gas vehicles.
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standard test procedures.

State

Title 24. Title 24 of the California Code of Regulations was established in 1978, and serves to enhance and regulate California’s building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes energy efficiency standards for residential and nonresidential buildings constructed in the State of California in order to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The most recent amendments, referred to as the 2013 standards, became effective on July 1, 2014. Building constructed in accordance with the 2013 standards will use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards. Additionally, the standards will save 200 million gallons of water per year and avoid 170,500 tons of GHG emissions per year (CEC 2012).

Title 24 also includes Part 11, known as California’s Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011, and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, as well as schools and hospitals. The mandatory standards require:

- 20% mandatory reduction in indoor water use.
- 50% of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen’s Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen’s more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water

conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 30% cement reduction, and cool/solar-reflective roofs.

Assembly Bill 1493. In response to the transportation sector accounting for more than half of California’s CO₂ emissions, Assembly Bill (AB) 1493 (Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. Standards for near-term emissions were fully implemented in 2012 and resulted in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%. Before these regulations could go into effect, the EPA had to grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. The waiver was granted by Lisa Jackson, the EPA administrator, on June 30, 2009. On March 29, 2010, the CARB executive officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012–2016 model years (see EPA and NHTSA Joint Final Rules for Vehicle Standards). The revised regulations became effective April 1, 2010.

Executive Order S-3-05. In June 2005, Governor Schwarzenegger established California’s GHG emission reduction targets in Executive Order S-3-05. The executive order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The California EPA secretary is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. The Climate Action Team (CAT) is responsible for implementing global warming emission reduction programs. Representatives from several state agencies compose CAT. Under the executive order, the California EPA secretary is directed to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. CAT fulfilled its initial report requirements through the 2006 *Climate Action Team Report to Governor Schwarzenegger and the Legislature* (CAT 2006).

The 2009 *Climate Action Team Biennial Report* (CAT 2010a), published in April 2010, expands on the policy outlined in the 2006 assessment. The 2009 report provides new information and scientific findings regarding the development of new climate and sea level projections using new information and tools that have recently become available. It also evaluates climate change within the context of broader social changes, such as land use changes and demographics. The 2009 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate

change determined to require future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

The 2010 *Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (CAT 2010b) reviews past Climate Action Milestones including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard, a statewide renewable energy standard, and the cap-and-trade program. Additionally, the 2010 report includes a cataloging of recent research and ongoing projects; mitigation and adaptation strategies identified by sector (e.g., agriculture, biodiversity, electricity, and natural gas); actions that can be taken at the regional, national, and international levels to mitigate the adverse effects of climate change; and today's outlook on future conditions.

Assembly Bill 32. In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB is also responsible for adopting regulations requiring the reporting and verification of statewide GHG emissions to monitor and enforce compliance with the established standards. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early-action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early-action GHG reduction measures under AB 32. The three original early-action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” consist of the following:

1. A low-carbon fuel standard to reduce the “carbon intensity” of California fuels.
2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants.
3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early-action regulations, which were also considered “discrete early action GHG reduction measures,” consist of the following:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology.
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification.
3. Reduction of perfluorocarbons emissions from the semiconductor industry.
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products).
5. Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency.
6. Restriction on the use of SF₆ from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMT of CO₂E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO₂ in excess of specified thresholds.

On December 11, 2008, CARB approved the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) (CARB 2008a) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California’s GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

The key elements of the Scoping Plan include the following:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
- Achieving a statewide renewable energy mix of 33%.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California’s GHG emissions.

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing state laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California’s long-term commitment to AB 32 implementation.

An update to the Scoping Plan was adopted in May 2014 (CARB 2014). Based on updated information, the Scoping Plan Update revises the 2020 emissions target to 431 MMT CO₂E (based on updated GWPs for GHGs) and also builds upon the initial Scoping Plan with new strategies and recommendations. The Scoping Plan Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The Scoping Plan Update defines CARB’s climate change priorities for the next 5 years and sets the groundwork to reach California’s long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. Executive Order B-16-2012 directed state entities under the governor’s direction and control to support and facilitate development and distribution of zero-emission vehicles (ZEVs). The governor’s executive order sets a long-term target of reaching 1.5 million ZEVs on California’s roadways by 2025. On a statewide basis, the executive order also establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

The Scoping Plan Update highlights California’s progress toward meeting the 2020 GHG emission reduction goals defined in the initial Scoping Plan. These efforts were pursued to achieve the near-term 2020 goal, and have created a framework for ongoing climate action that can be built upon to maintain and continue economic sector-specific reductions beyond 2020, as required by AB 32. The Scoping Plan Update identified nine key focus areas, including energy, transportation, agriculture, water, waste management, and natural and working lands, along with short-lived climate pollutants, green buildings, and the cap-and-trade program. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by Executive Order S-3-05 to reduce California’s GHG emissions to 80% below 1990 levels, although no specific recommendations are made.

Executive Order S-1-07. Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the

amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020.

Senate Bill 97. In 2007, the California State Legislature enacted SB 97, which immunized some existing projects from challenges based on GHG analysis, and otherwise required the Office of Planning and Research (OPR) and the California Natural Resources Agency (CNRA) to develop new statewide CEQA guidelines “for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions” by January 1, 2010. Prior to the adoption of these new CEQA guidelines, the OPR issued a “Technical Advisory” in June 2008, which stated: “In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a ‘significant impact,’ individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA.” The technical advisory suggested that statewide significance thresholds were being considered, and referred to work being done by the CARB. In October 2008, CARB issued a *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (CARB 2008b). The document proposed a sector-by-sector approach to setting GHG significance thresholds. Staff proposed a threshold of 7,000 MT CO₂E per year for operational emissions (excluding transportation), and performance standards for construction and transportation emissions, which were intended to achieve compliance with Governor Schwarzenegger’s Executive Order S-3-05. CARB’s staff did not follow up on the proposed approach and the OPR finalized its revised CEQA Guidelines without reference to it. As required by SB 97, the revised guidelines were then approved by the CNRA.

The SB 97 CEQA guidelines do not set a GHG emissions significance threshold, and instead rely on lead agencies to set their own thresholds based on substantial evidence. The CEQA Guidelines do not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). The California Supreme Court decision in the *Center for Biological Diversity et al. v. California Department of Fish and Wildlife*, the Newhall Land and Farming Company (November 30, 2015, Case No. S217763) (hereafter Newhall Ranch) case confirmed that “multiple agencies’ efforts at framing GHG significance issues have not yet coalesced into any widely accepted set of numerical significance thresholds.”

The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to “make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project” (Section 15064(a)).
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (Section 15064.4(a)).
- Requiring a lead agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment:
 - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
 - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
 - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (Section 15064.4(b)).
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the environmental checklist set forth in CEQA Guidelines Appendix G:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts.

Senate Bill 375. In August 2008, the legislature passed, and on September 30, 2008, Governor Schwarzenegger signed, SB 375 (Steinberg), which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG

reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan. The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for “transit priority projects,” as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or alternative planning strategy. CARB set a target of 7% per capita reduction by 2020 and a 15% per capita reduction by 2035 for the Bay Area.

The Association of Bay Area Governments and the Metropolitan Transportation Commission, which is the metropolitan planning organization for the Bay Area, adopted the *Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2013 – 2040* (Plan Bay Area) in July 2013 (ABAG and MTC 2013). The Plan Bay Area is a long-range plan for transportation projects within the planning area and established 10 performance targets to achieve the following goals/outcomes: Climate Protection, Adequate Housing, Healthy and Safe Communities, Open Space and Agricultural Preservation, Equitable Access, Economic Vitality, and Transportation System Effectiveness. Two of these targets are mandatory to comply with SB 375, and the Plan Bay Area establishes strategies to achieve 15% reduction per capita in GHG emissions from light-trucks and cars by 2035 (Climate Protection Goal), and plans to house 100% of the region’s projected growth (from a 2010 baseline year) by income level without displacing current low-income residents (Adequate Housing Goal).

Executive Order S-13-08. Governor Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The executive order is intended to hasten California’s response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directed the CNRA, in cooperation with the California Department of Water Resources, CEC, California’s coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies, were required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess

within 90 days of issuance of the executive order the vulnerability of the state's transportation systems to sea-level rise. The OPR and the CNRA are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The order also required the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Senate Bill XI 2. On April 12, 2011, Governor Jerry Brown signed SB XI 2 in the First Extraordinary Session, which expands the Renewable Portfolio Standard by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current. A renewable electrical generation facility under this bill would also meet other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB XI 2 adds local publicly owned electric utilities to the Renewable Portfolio Standard. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets and that the governing boards be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the Renewable Portfolio Standard for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

Executive Order B-16-12. Governor Brown issued Executive Order B-16-12 on March 23, 2012. The Executive Order requires that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emission vehicles. It orders CARB, the CEC, the CPUC, and other relevant agencies work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following by 2015:

- The state's major metropolitan areas will be able to accommodate ZEVs, each with infrastructure plans and streamlined permitting.

- The state’s manufacturing sector will be expanding ZEV and component manufacturing.
- The private sector’s investment in ZEV infrastructure will be growing.
- The state’s academic and research institutions will be contributing to ZEV research, innovation, and education.

CARB, the CEC, and the CPUC are also directed to establish benchmarks to help achieve the following goals by 2020:

- The state’s ZEV infrastructure will be able to support up to one million vehicles.
- The costs of ZEVs will be competitive with conventional combustion vehicles.
- ZEVs will be accessible to mainstream consumers.
- There will be widespread use of ZEVs for public transportation and freight transport.
- Transportation sector GHG emissions will be falling as a result of the switch to ZEVs.
- Electric vehicle charging will be integrated into the electricity grid.
- The private sector’s role in the supply chain for ZEV component development and manufacturing will be expanding..

Benchmarks are also to be established to help achieve the following goals by 2025:

- Over 1.5 million ZEVs will be on California roads, and their market share will be expanding.
- Californians will have easy access to ZEV infrastructure.
- The ZEV industry will be a strong and sustainable part of California’s economy.
- California’s clean, efficient vehicles will annually displace at least 1.5 billion gallons of petroleum fuels.
- On a statewide basis, the Executive Order establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

Executive Order B-18-12. Governor Brown issued Executive Order B-18-12 on April 25, 2012. The Executive Order directs state agencies, departments, and other entities under the governor’s executive authority to take actions to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. To accomplish these goals with respect to construction of new buildings or major renovations, the Executive Order further orders state agencies to implement the following measures:

- All new state buildings and major renovations beginning design after 2025 will be constructed as Zero Net Energy facilities with an interim target for 50% of new facilities

beginning design after 2020 to be Zero Net Energy.

- Any proposed new or major renovation of state buildings larger than 10,000 square feet use clean, on-site power generation, such as solar photovoltaic, solar thermal and wind power generation, and clean back-up power supplies, if economically feasible.
- New or major renovated state buildings and build-to-suit leases larger than 10,000 square feet obtain LEED “Silver” certification or higher.
- New buildings incorporate building commissioning to facilitate improved and efficient building operation.
- State agencies identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new buildings.
- The Executive Order also established goals for existing state buildings for reducing grid-based energy purchases and water use.

Senate Bill 605. On September 21, 2014, Governor Jerry Brown signed SB 605, which requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means “an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide.” SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities. The draft strategy released by CARB in September 2015 focuses on methane, black carbon, and fluorinated gases, particularly hydrofluorocarbons, as important short-lived climate pollutants. The draft strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed.

Senate Bill 350. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the Renewable Portfolio Standard by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in

consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

Executive Order B-30-15. On April 29, 2015, Governor Jerry Brown issued an executive order that identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. Executive Order B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050, as set forth in Executive Order S-3-05. To facilitate achievement of this goal, Executive Order B-30-15 calls for an update to CARB’s Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent. The executive order also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry will be required to prepare GHG reduction plans by September 2015, followed by a report on actions taken in relation to these plans in June 2016. The executive order does not require local agencies to take any action to meet the new interim GHG reduction threshold. It is important to note that Executive Order B-30-15 was not adopted by a public agency through a public review process that requires analysis pursuant to CEQA Guidelines Section 15064.4 and that it has not been subsequently validated by a statute as an official GHG reduction target of the State of California. The executive order itself states it is “not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.”

California Air Pollution Control Officers Association. The California Air Pollution Control Officers Association (CAPCOA) is the association of air pollution control officers representing all 35 air quality agencies throughout California. CAPCOA is not a regulatory body, but it has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues. The GHG analysis set forth in this report has been informed, in part, by the expertise and methodologies described in the following documents published by CAPCOA: (1) *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (CAPCOA 2008) and (2) *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA 2010).

Local

The following local regulations pertaining to GHGs emissions would apply to the proposed project.

Sonoma County General Plan. On September 27, 2005, the Sonoma County Board of Supervisors established a county-wide GHG reduction target. The target is to reduce emissions 25% below 1990 levels by 2015, which exceeds the state target under AB 32. Accordingly, the *Sonoma County General Plan 2020* Resource Conservation Element Objective OSRC-14.4 is to “reduce GHG emissions by 25 percent below 1990 levels by 2015” (County of Sonoma 2013a). Towards this objective, the County has established policies that govern its review of the GHG emissions of discretionary projects, including the following:

- Policy OSRC-14c: Continue to purchase and utilize hybrid, electric, or other alternative fuel vehicles for the County vehicle fleet; and encourage County residents and businesses to do the same.
- Policy OSRC-14d: Support project applicants in incorporating cost effective energy efficiency that may exceed State standards.
- Policy OSRC-14e: Develop energy conservation and efficiency design standards for new development.
- Policy OSRC-14f: Use the latest green building certification standards, such as the Leadership in Energy and Environmental Design (LEED) standards, for new development.
- Policy OSRC-14i: Manage timberlands for their value both in timber production and offsetting greenhouse gas emissions.

Sonoma County Municipal Code. The Sonoma County Code includes several chapters that address GHGs and climate change, including:

- Chapter 7: Building Regulations. Adopts the 2013 California Building Code, with local amendments; adopts the 2013 California Green Building Standards Code Chapters 1–9 and Appendix A4 (Tier 1) and Appendix A5 (Tier 1) for new construction only, excepting A4.2 and A5.2 respectively; and adopts the 2013 California Energy Code.
- Chapter 7D1: Green Building. Requires the integration of green building practices (including water and resource conservation and energy efficiency) into the design, construction, and maintenance of buildings (County of Sonoma 2010).
- Chapter 7D2: Local Energy Efficiency Standards. Sets forth minimum energy efficiency standards within Sonoma County for all new residential development (County of Sonoma 2013b).

- Chapter 7D3: Water Efficient Landscape. Regulates the design, installation, and maintenance of new and rehabilitated landscapes. This chapter was enacted pursuant to the Water Conservation in Landscaping Act (County of Sonoma 2015).

3.6.3 Impacts and Mitigation Measures

3.6.3.1 Significance Criteria

The County is currently in the process of adopting a Climate Action Plan in conjunction with the other local agencies in Sonoma County that will meet the tiering and streamlining requirements of CEQA Guideline 15183.5. Pending completion of that plan, the County concurs with and utilizes as County thresholds the thresholds that BAAQMD staff have recommended as GHG significance thresholds. The BAAQMD does not recommend any specific significance thresholds for construction and operational GHG emission impacts pending the conclusion of litigation, which does not involve the question of whether the BAAQMD thresholds are supported by substantial evidence. Instead, the current BAAQMD guidelines suggest that lead agencies have options, including referencing BAAQMD's *CEQA Thresholds Options and Justification Report* developed by BAAQMD staff in 2009, in selecting the lead agency's own significance threshold based on substantial evidence. The County concurs that the 2009 GHG thresholds are supported by substantial evidence, for the reasons stated by BAAQMD staff.

With regard to impacts from GHGs, both BAAQMD and CAPCOA consider GHG impacts to be exclusively cumulative impacts (BAAQMD 2009; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 MT CO₂E per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 MT CO₂E per year (i.e., emissions above this level may be considered significant); or
- 4.6 MT CO₂E per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The threshold of 1,100 MT CO₂E annually proposed by BAAQMD in its 2009 Justification Report is applied to this analysis. If the project construction and operational GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

3.6.3.2 Impact Discussion

Impact GHG-1: The project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. This would be a less-than-significant impact.

Construction would involve demolishing three existing buildings including a 2,285-square-foot barn, a 2,490 square-foot legal nonconforming residence, and a 1,780-square-foot legal nonconforming farmworker housing with garage and grading of approximately 3.1 acres of the site. The proposed earthwork would balance on site and would not require import or export of soil. The project would add approximately 0.3 acre of impervious surfaces to the project site. New structures that would be constructed on site include a production facility, tasting room (hospitality building), farmworker residences, and a milking barn.

Construction of the proposed project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using the California Emissions Estimator Model (CalEEMod). Construction GHG emissions were then amortized assuming a 30-year development life after completion of construction and added to operational emissions. Amortized GHG emissions associated with project construction would result in annualized generation of 9 MT CO₂E.

A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix C.

Operational or long-term emissions occur over the life of the project. CalEEMod was used to estimate GHG emissions from motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance). Table 3.6-2 presents an estimate of the proposed project's unmitigated operational CO₂E emissions, as well as the existing structures to be demolished, and the incremental increase between the project and existing emissions.

**Table 3.6-2
Estimated Annual Operational Greenhouse Gas Emissions**

Emission Source	CO ₂ E (MT/yr)
Area	<1
Energy	74
Mobile	197
Solid Waste	4
Water Supply and Wastewater	2
Total	278
Amortized Construction Emissions	9
Operation + Amortized Construction Total	287
Existing Residential	- 47
Net Total	240
<i>BAAQMD GHG Threshold</i>	1,100
<i>Significant (Yes or No)?</i>	No

Note: GHG emissions were calculated using the CalEEMod model for the project site construction, for the existing scenario, and for project buildout. Additional assumptions and data are included in Appendix C.

Table 3.6-2 indicates that the net GHG emissions (240 MT CO₂E/yr) associated with the project would be well below BAAQMD's GHG threshold of 1,100 MT CO₂E per year. This would represent a cumulatively less-than-significant GHG impact.

Mitigation

No mitigation measures are required.

Impact GHG-2: The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This would be a less-than-significant impact.

The Climate Change Scoping Plan approved by CARB on December 12, 2008, and updated in May 2014 provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

As shown in Table 3.6-2, the project would emit 287 MT CO₂E per year. In 2014, Sonoma County produced 3.6 million tons of GHG emissions (Center for Climate Protection 2015). The project emissions of 287 MT CO₂E per year would add less than 0.01% to the overall Sonoma County GHG emissions. This incremental increase in GHG emissions would not significantly increase Sonoma County's overall GHG emissions. Additionally, because the project would not exceed the BAAQMD screening threshold, this analysis provides support for the conclusion that the project would not conflict with Executive Order S-3-05's GHG reduction goals for California.

The proposed project would promote sustainable operations by treating and reclaiming wastewater on site and including Low Impact Development techniques for stormwater collection. Fruit for the wine would come predominately from the project site, with some fruit coming from the surrounding areas, which would reduce truck deliveries associated with exporting fruit for processing and importing equipment (a forklift) to the site multiple times a year. The project would encourage direct-to-consumer sales of wine and farmstead goods through use of the tasting room and agricultural promotion events, which would reduce the amount of goods exported from the site. As discussed in Chapter 2, Project Description, the project would treat sanitary wastewater and process wastewater on site. Reclaimed processed wastewater would supplement existing irrigation to the vineyards. Low Impact Development techniques would be utilized to facilitate stormwater infiltration into the soils. Landscaping around residences on the property would utilize native vegetation.

The project would also comply with requirements outlined in the Sonoma County Building Regulations and Green Building Ordinance. The Building Regulations and Green Building Ordinance meets the standards provided in the 2013 California Green Building Standards and the California Energy Code which became effective throughout California in 2014. The project would be required to meet the new construction standards for conformance with CalGreen Tier 1 except for Tier 1 Energy Efficiency. The combination of mandatory and elective measures for achieving the CalGreen standards must be documented on the County of Sonoma – 2013 CalGreen Checklist for New Non-Residential Buildings. Some measures may include, but are not limited to, passive solar design, natural lighting and ventilation, water conserving plumbing and kitchen fixtures, bicycle parking, fuel-efficient vehicle parking, cool roof design, Low Impact Development stormwater BMPs, use of recycled materials in construction, and recycling of construction debris. Building permits are not issued without demonstrated compliance with the standards.

The proposed project would be consistent with applicable plans, policies and ordinances to achieve reduction targets as established for 2020 and 2035, and subsequently the state's GHG reduction goals for 2030 and 2050. Impacts would be less than significant.

Mitigation

No mitigation measures are required.

3.6.3.3 Cumulative Impacts

Impact GHG-3: The project would not contribute to cumulative impacts with respect to GHGs. This would be a less-than-significant impact.

GHG impacts are cumulative impacts (BAAQMD 2009; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project

represent a cumulatively considerable contribution to the global atmosphere. If a project exceeds the identified significance thresholds, its contribution of GHG emissions would be cumulatively considerable, resulting in a cumulatively significant impact on climate change. As discussed above, impacts would be less than significant.

Mitigation

No mitigation measures are required.

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3.7 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrology and water quality of the project site, identifies associated regulatory requirements, evaluates potential project level and cumulative impacts, and identifies mitigation measures related to implementation of the proposed project.

3.7.1 Environmental Setting

This section describes the existing conditions in the project area related to hydrology, drainage, water quality, and groundwater. This section is based on published maps, reports, and online resources from the U.S. Geological Survey (USGS), the State Water Resources Control Board (SWRCB), the North Coast Regional Water Quality Control Board (NCRWQCB), and the County of Sonoma. Information on groundwater is based on a project-specific groundwater report, which is included as Appendix F.

Climate and Precipitation

Typical of Sonoma County, the project site has a Mediterranean climate, with warm dry summers and cool wet winters. The climate station with the longest-running record (1906–2010) is in the City of Santa Rosa, which reports an average annual precipitation of 30 inches, most of which (98%) falls within the months of October through May. Historically, January is the wettest month, with an average precipitation of 6.4 inches, followed by February and December, with average precipitation of 5.3 and 5.2 inches, respectively (USGS 2013). There is significant year-to-year variation in the region, with multi-year droughts having affected the region in the late 1970s, in the late 1980s and early 90s, and the last four years.

Though the timing and frequency of precipitation on the project site is similar to that of Santa Rosa, the project site tends to receive greater rainfall amounts out of each weather system compared to Santa Rosa due to the effects of orographic lift (i.e., greater elevation). The Parameter-elevation Regressions on Independent Slopes Model (PRISM), provides an estimate of spatial and temporal variability in precipitation as described in Appendix F. According to PRISM, mean annual precipitation on the site is over 48 inches per year (USGS 2013). The Sonoma County Water Agency isohyetal map shows a somewhat lesser average for the project site, with an average precipitation of approximately 42 inches (SCWA 1983). Though there are no climate stations on site or in the immediate vicinity, based on the above, average annual precipitation can be reasonably expected to be between 42 to 48 inches. A detailed discussion of climate is provided in Appendix F.

Watersheds

The USGS Watershed Boundary Dataset delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code (HUC), which gets longer as the watershed boundaries get more detailed. At the highest level of detail for the USGS Watershed Boundary Dataset, the proposed project is within the 56-square-mile Upper Santa Rosa Creek sub-watershed (HUC 180101100702) (Table 3.7-1).

In managing water resources, the SWRCB and the local governments classify watersheds in a hierarchical system similar to the USGS Watershed Boundary Dataset, but with somewhat different watershed names and boundaries. These geographic boundaries are likewise watershed based, but are typically referred to as hydrologic basins and are defined in the *Water Quality Control Plan for the North Coast Region* (NCRWQCB 2011). These generally constitute the geographic basis around which many surface water quality problems and goals/objectives are defined. The proposed project is within the Middle Russian River hydrologic area (Basin No. 114.2), and the Santa Rosa hydrologic sub-area (Basin No. 114.22), one of the many sub-areas within the NCRWQCB (Table 3.7-1).

The “receiving waters” for the project (i.e., all waters within the flow network downstream of the project site) include Matanzas Creek, Santa Rosa Creek, Mark West Creek, the Russian River, and the Pacific Ocean. Drainage in the project area is collected by the South Fork Matanzas Creek and Matanzas Creek (main stem) before eventually joining Santa Rosa Creek approximately 7.5 miles northwest of the project site. Approximately 10 miles northwest of the city of Santa Rosa, Santa Rosa Creek joins Mark West Creek near the western edge of the Mark West Creek watershed (USGS 2015). Mark West Creek joins the Russian River approximately 4 miles northwest of its confluence with Santa Rosa Creek. From there, the Russian river flows through the Coast Ranges for approximately 13 miles to the west before it outlets to the Pacific Ocean.

Table 3.7-1
Watershed Designations by Agency/Source

Agency/Source	HUC/Basin No.	Watershed Name
USGS Watershed Boundary Dataset	180101	Northern California Coastal accounting unit (17,474 sq. mi.)
	18010110	Russian River cataloguing unit (1,484 sq. mi.)
	1801011007	Mark West Creek watershed (254 sq. mi.)
	180101100702	Upper Santa Rosa Creek sub-watershed (56 sq. mi.)
NCRWQCB Basin Plan	1	North Coast region
	114	Russian River hydrologic unit
	114.2	Middle Russian River hydrologic area
	114.22	Santa Rosa hydrologic sub-area

Sources: USGS 2015; NCRWQCB 2011.

Notes: HUC = hydrologic unit code; sq. mi. = square miles

Site Topography and Drainage

The project site is located at the southern end of the Bennett Valley, in a transition zone between the valley floor and Sonoma Mountain. Elevations rise to the east and south towards the crest of Sonoma Mountain, whose peak is 2,300 feet above mean sea level (amsl), and descend to the northwest in the direction of Bennett Valley, whose floor is roughly 500 feet amsl. Based on review of high resolution topographic data, elevations on the property extend from a high of 1,070 feet amsl in the southeastern corner to a low of 910 feet amsl in the southwestern corner along the South Fork Matanzas Creek (UNM and NASA 2013). The majority of the site ranges in elevation from 950 to 1,020 feet amsl, with slope gradients of less than 10%. Localized areas of the site, such as the small hill on the northwestern corner of the site and the gully along the South Fork Matanzas Creek have slope gradients that are between 10% and 50% (UNM and NASA 2013).

As shown in Figure 3.7-1, the property is bisected by a subtle topographic divide that directs drainage in opposite directions. To the north and east of this divide, stormwater runoff sheet flows¹ into an unnamed intermittent creek, which cuts across the northeastern corner of the site and continues west along the south side of Sonoma Mountain Road. A short distance west of the project parcel, an earthen berm crosses the creek, creating a small off-site pond. The pond is roughly 0.5 acre in size, and the storage volume is unknown but estimated to be minimal (i.e., < 3 acre-feet). Past the pond, the unnamed creek continues approximately 1,000 feet in a southwesterly direction before joining the South Fork Matanzas Creek. To the south and west of the topographic divide, comprising the majority of the site, drainage sheet flows into an on-site pond where an earthen berm has been placed to capture stormwater runoff. The surface area of the pond is approximately 2.22 acres and has 18 acre-feet of storage when full (USGS 2015, SWCB 2015). South and west of the pond, stormwater runoff sheet flows into to the South Fork Matanzas Creek.

The project site is thus entirely within the watershed of the South Fork Matanzas Creek. The upper sections Matanzas Creek, including the south fork, are classified as perennial streams, although, by late summer and fall, flows diminish to less than 2 cubic-feet per second throughout much of the drainage and can completely dry up in multi-year droughts (USGS 2013). Most of the streamflow is runoff generated in response to rainfall, with about 90% of the total annual discharge volume from October through May. Mirroring precipitation patterns, streamflow in Matanzas Creek is highly variable, not only on a seasonal basis but also from year to year.

¹ Sheet flow refers to an overland flow or downslope movement of water taking the form of a thin, continuous film over relatively smooth soil or rock surfaces and not concentrated into channels.

Soil Types and Land Cover

Soil types and land cover within the watershed have important roles in determining the timing and magnitude of stormwater runoff, because both influence the degree to which rainfall is translated into runoff (as opposed to being retained or infiltrated into the ground). The available surface-water records indicate that a high percentage of streamflow at the mouth of Matanzas Creek is generated as overland flow, with a relatively fast response time to the larger storm events (USGS 2013).

Based on review of the U.S. Department of Agriculture soil survey, the surface soils that have developed on top of the underlying geology consist almost entirely of Goulding clay loam and Spreckels loam² (USDA 2016). These soils are rich in clay and conducive to runoff rather than infiltration. Nearly the entire watershed is composed of hydrologic soil groups C and D³, and have runoff ratings of moderate to very high (USDA 2016). Clay loams do allow for some infiltration and recharge of the underlying groundwater, but the rate is slower than for sandy soils. This information is consistent with the fast response time to larger storm events, and the observation that small rural ponds in the vicinity fill up quickly following intense or sustained rainfall. The primary sources of groundwater recharge in the larger region, including the Santa Rosa Plain, is precipitation in the upland portions of the watershed, infiltrating stream flows, septic-tank effluent, and irrigation (USGS 2013).

The land cover within the watershed is predominantly comprised of undeveloped open space, with a mix of grazing land, vineyards, and rural residential properties concentrated along Sonoma Mountain Road and rural side roads. Due to the rural and undeveloped nature of the watershed, it is minimally impacted by impervious surfaces, which are limited to paved public roadways and building footprints (such as residences, barns, and outbuildings). Impervious surfaces prevent any rainfall from being intercepted by soils and vegetation and infiltrating into the ground, which can accelerate the magnitude and arrival times of peak flows in area drainages, if not dispersed. Based on project plans, the project site currently has approximately 11,797 square feet (0.3 acre) of impervious surfaces consisting of rooftops and structure pads (Figure 3.7-1). On-site roads are unpaved or surfaced with gravel. Approximately 0.2% of the watershed as a whole is estimated to be covered by impervious surfaces (USGS 2016).

² Loam is soil composed of sand, silt, and clay in relatively even concentration (about 40%-40%-20% concentration, respectively). The term is often qualified to indicate a relative abundance of one constituent over others (e.g., a “silt loam” is a loam, but where silt is more abundant than sand and gravel).

³ Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long duration storms. Hydrologic group A has the lowest runoff potential, and hydrologic group D has the highest runoff potential.

Flooding Risk

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the project area, the project site is not located within the 100-year flood plain (DWR 2015). The project site is not located below any dams or in proximity to any levees and is not located within a dam failure inundation hazard area as determined by California Office of Emergency Services (County of Sonoma 2013). The project's position on a local high point means the risk of significant flooding on the site is negligible to null.

Surface Water Quality

Both Matanzas Creek (main stem) and South Fork Matanzas Creek receive stormwater runoff from natural areas, rural residential parcels, vineyards, and pasture lands in the project vicinity. Water quality monitoring data is not available for the waterways adjacent to the project site; however, water quality monitoring from the Russian River and some of its tributary creeks (including the main stem of Matanzas Creek) reflect exceedance of screening criteria for bacteria and other indicators of bovine and human waste, which pose a potential threat to the waters' ecological and recreational beneficial uses. One source of the issue is from aging infrastructure and outdated facilities, such as leaking septic systems and sewer lines, which can indirectly discharge insufficiently treated fecal waste to waterways, particularly during wet weather. Other potential sources of fecal waste include dairy and non-dairy livestock operations, municipal wastewater treatment facilities, trash and debris, and pet waste.

The entire Russian River watershed is designated as "water quality limited" under the federal Clean Water Act's (CWA's) Section 303(d) for indicator bacteria, in addition to sedimentation/siltation and water temperature (33 U.S.C. 1251 et seq.) (Table 3.7-2). Being "water quality limited" means that a water body is "not reasonably expected to attain or maintain water quality standards" without additional regulation. The law requires that the EPA develop total maximum daily loads (TMDLs) for each impaired water body in the nation, which specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

Pursuant to the impairments listings, the NCRWQCB has adopted the "Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region," which is also known as the Sediment TMDL Implementation Policy, on November 29, 2004. The Sediment TMDL Implementation Policy states that NCRWQCB will control sediment pollution by using existing permitting and enforcement tools. Furthermore, the NCRWQCB is in the process of developing a TMDL for the Russian River to address the pathogen indicator bacteria impairment. Impairments, pollutants, potential sources, and TMDL status are shown in Table 3.7-2.

**Table 3.7-2
Clean Water Act Section 303(d) Impairments**

Name	Pollutant/ Stressor	Potential Sources	TMDL Status	Year
Tributaries to Santa Rosa Creek (this includes Matanzas Creek)	Indicator bacteria	Nonpoint sources, other	Scheduled	2016
	Sedimentation/siltation	Flow alteration/regulation/modification, removal of riparian vegetation, streambank modification/destabilization	Scheduled	2026
	Temperature	Flow alteration/regulation/modification, removal of riparian vegetation	Scheduled	2025
Mainstem Santa Rosa Creek	Indicator bacteria	Source unknown	Scheduled	2016
	Sedimentation/siltation	Flow alteration/regulation/modification, removal of riparian vegetation, streambank modification/destabilization	Scheduled	2025
	Temperature	Flow alteration/regulation/modification, removal of riparian vegetation	Scheduled	2025

Source: SWRCB 2016.

Note: TMDL = total maximum daily load

Groundwater Hydrology

The County uses a four-tier classification system to indicate general areas of groundwater availability: Class 1 is the major groundwater basins; Class 2 is major natural recharge areas; Class 3 is marginal groundwater availability areas; and Class 4 is areas with low or highly variable water yield. The project site is in a Class 3 area that indicates marginal groundwater availability and triggers the need to require careful consideration of groundwater resources in the permitting process (County of Sonoma 2004). There are no adjudicated groundwater basins in Sonoma County, and the project is not within a groundwater basin as defined by the Department of Water Resources (DWR). However, the site and vicinity is not served by any municipal water system, which means most surrounding land uses rely largely on groundwater to serve both domestic and agricultural needs (though some water demands are supplied by small surface water reservoirs and ponds).

The geologic units underlying the project site and surrounding area are comprised of the Sonoma Volcanics, the upper Petaluma Formation, and other late-tertiary to Quaternary-age sedimentary deposits, including the Glen Ellen Formation, colluvium, and some landslide masses (USGS 2007). The rocks of the Sonoma Volcanics are older and lie stratigraphically beneath the Petaluma Formation. USGS (2013) describes the Petaluma Formation as an aquifer of minimal and variable water bearing capacity—widely distributed, but with a relatively low productivity that is tapped for water when no better option is available at a particular location. Because of the complicated interfingering stratigraphic relations of the Petaluma Formation, Glen Ellen Formation, and Sonoma Volcanics, some wells can pass from one formation into another more

than once. The interfingering of the three formations can also place relatively impermeable lavas or clay beds above more permeable sand or gravel beds, producing confined or semi-confined groundwater conditions.

The water-bearing properties of Sonoma Volcanics are described by USGS (2013) as highly heterogeneous, since welded tuff, mafic/basaltic lavas, and other unfractured volcanic rocks have very low specific yields and hydraulic conductivities, whereas coarse tephra, air-fall tuffs/pumice, and rubble zones between lava flows can have very high specific yields and hydraulic conductivities. Fractured welded tuffs and lavas have low porosity and, therefore, store little water; but, in some cases, these units have relatively high transmissivity values where the fracture network is extensive. For these reasons, the wells that penetrate the Sonoma Volcanics can produce very different yields. The typical range is 10 to 50 gallons per minute (GPM), though some wells may yield under 10 GPM or may be dry, while others (where thick air-fall pumice units are penetrated) may yield a few hundred GPM (USGS 2013).

The *Pilot Study of Groundwater Conditions in the Joy Road, Mark West Springs, and Bennett Valley Areas* prepared by Kleinfelder (2003) examined precipitation, water level, well construction, and land use trends in the Bennett Valley and found evidence of declining groundwater levels over time, though not nearly at the same rate of increase of population growth in the area. Development pressures and associated groundwater well pumping was considered to be the primary factor driving this trend, as precipitation trends had been relatively flat over time. Water demands within the 7-square-mile study area (which is inclusive of the project site) were estimated to be 215 acre-feet per year (AFY) and 288 AFY for agriculture and residential uses, respectively. Kleinfelder also found that newer wells were being drilled at deeper depths, which is suggestive of declining groundwater levels, but could also reflect a migration of drilling sites from low-lying valley sites to higher elevations and ridge tops. Bennett Valley residents and community leaders have reported a number of well failures—wells that go dry seasonally—and properties where sufficient water supplies could not be developed (Kleinfelder 2003).

A project-specific groundwater study was prepared to assess the groundwater conditions in the study area and evaluate the potential impacts of the project on groundwater in storage and on water levels in adjacent wells and impacts to surface water flows; the study is provided as Appendix F. As part of the study, an inventory of local wells was developed based on review of well completion reports submitted to DWR, County well records, and a field visit to the project site and surrounding properties, which are shown in Table 3.7-3 and Figure 3.7-2 (Well A-1, located in the developed portion of the site, is the proposed project well). Groundwater levels in the area are variable, with most well records showing a range of groundwater depths between 50 and 100 feet below the surface. All wells in the vicinity penetrate thick packages of blue clay, with the water-yielding layers being interbedded sand, gravels, and volcanic rocks (i.e., pumice

and ash). Groundwater elevations in the vicinity tend to decrease in the same general trend of the topography, to the northwest. Most rural residential wells in the area are shallow, generally less than 300 feet below top of casing (btoc), which only tap Petaluma Formation materials. The deeper wells (i.e., > 600 feet) included in the inventory consist of both domestic and irrigation wells, and reach interfingering packages of Sonoma Volcanics (ash, pumice, and tuffs) and clays, as well as hard layers of basalt.

Figure 3.7-3 presents a 1-mile-long geologic cross section (A-A') going through the project site, looking west-southwest, which projects select wells and shows how they intersect with each geologic unit underlying the area (Appendix F). Groundwater levels are plotted along with the specific intervals tapped by each well. The deeper wells in the vicinity that tap the Sonoma Volcanics tend to produce higher yields compared to the shallow wells that tap sand and gravel seams in the Petaluma Formation.

Groundwater Quality

USGS (2013) indicates chloride, dissolved solids, nitrate, arsenic, boron, iron, and manganese are water-quality constituents of potential concern for groundwater in the region.

Dudek collected a sample of the project well water on December 11, 2015, and sent it to a certified laboratory for analysis of general minerals, inorganic minerals, and bacteriological constituents for comparison to California drinking water primary maximum contaminant levels (MCLs) and secondary MCLs (Appendix F). Color, turbidity, manganese, and iron exceeded secondary MCLs. Secondary MCLs address aesthetic concerns such as taste and odor, and do not represent levels that are considered to present a risk to human health. Secondary MCLs are non-mandatory water quality standards and are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations. Exceedances of secondary MCLs for these constituents in groundwater are not unusual, as volcanic rocks and sedimentary rocks derived from volcanic materials have naturally elevated levels of both constituents.

All other constituents, including priority metals, fecal coliform, and *E. coli*, were not detected, or were detected in concentrations below regulatory drinking water limits (Appendix F). Table 3.7-4 shows the secondary MCL exceedances, the results for the constituents of concern cited by USGS (2013), and bacteriological constituents. The full suite of compounds analyzed and the results are provided in Appendix F.

Table 3.7-3
Well Inventory

Well No.	Distance (ft.)/Direction from Well A-1	Elevation (ft. amsl) ^a	Well Depth (ft. btoc)	Screened Interval(s) (ft. btoc)	Reported Yield (GPM) ^d	Depth To Water (ft. btoc) (Date)	Well Use	Year Drilled
<i>On-Site (Project) Well</i>								
A-1	—	994	690b	290-330; 350-490; 510-690	500	73.79 (11/4/15)	Domestic	2001
<i>Surveyed Off-Site Wells</i>								
C-1	714/NNE	989	210 ^c	—	—	78.83 (11/4/15)	Domestic	—
C-2	716/NE	988	270 ^b	140-270	13	76.12 (11/4/15)	Abandoned	1980
B-1	1,224/W	980	155 ^b	95-100; 135-155	10	67.27 (11/13/15)	Domestic	1974
K-1	1,501/W	961	577 ^b	337-357; 377-397; 437-457; 477-497; 557-577	42	64.75 (11/13/15)	Stand-by	1997
K-2	1,577/W	954	740 ^b	280-300; 400-460; 480-520; 600-740	300	35.31 (11/13/15)	Domestic/Irrigation	2009
L-1	1,686/W	941	80 ^c	—	—	58.56 (11/13/15)	Domestic	—
P-1	1,973/NW	896	--	—	—	91.51 (11/13/15)	Domestic	—
<i>Other Off-Site Wells^e</i>								
X-1	1,240/N	980	620	180-240, 340-360, 460-500	30	140 (7/17/2008)	Irrigation	2008
X-2	1,467/NW	925	840	558-578, 628-658, 673-683, 710-730, 797-837	350	—	Irrigation	1993
X-3	2,431/WNW	778	> 400	No Records	22	49 (10/13/2008)	—	—
X-4	2,493/NNE	856	138	50-60, 123-133	15	15 (9/27/1978)	Domestic	1978
X-5	2,907/WSW	900	338	100-120, 310-330	10	110 (9/24/1979)	Domestic	1979
X-6	2,292/NW	937	760	270-290, 390-410, 510-530, 630-750	30	120 (10/5/2007)	Domestic	2007
X-7	5,136/NE	1,134	800	400-800	15	3 (8/2/1994)	Domestic	1994
X-8	1,839/WSW	900	50	35-50	20	14 (5/14/1968)	Domestic	1968
X-9	2,713/SE	1,297	215	115-215	50	50 (8/12/2005)	Domestic	2005

Source: Appendix F

Notes: ft. = feet; amsl = above mean sea level; btoc = below top of casing; GPM = gallons per minute;

^a Elevations are derived from a geographic information system (GIS) of 0.5-meter digital LiDAR.

^b Determined through DWR well completion reports, County well permits, or work receipts from drillers.

^c Owner-reported value.

^d As reported on County well permits or DWR well completion reports. May not reflect long term yield or actual pumping capacity.

^e Off-site wells not surveyed were located using well permit sketches, and where sketches unavailable, Assessor's Parcel Number centroid. Well X-2 location derived from Boudreau (2013) report.

**Table 3.7-4
Water Quality Testing Results for Project Well**

Constituent	Analytical method	Units	Result	California Drinking Water MCLs
<i>Secondary MCL Exceedances</i>				
Iron	EPA 200.7	µg/L	1700	300 ^a
Manganese	EPA 200.8	µg/L	150	50 ^a
Color	SM2120 B-2001	Color Units	89	15 ^a
Turbidity	SM2130 B-2001	NTU	11.5	5 ^a
<i>Selected Constituents of Concern</i>				
Chloride	EPA 300.1	mg/L	5.0	250/500/600 ^b
Total Dissolved Solids	SM2540 C-1997	mg/L	244	500/100/1,500 ^{a, b}
Nitrate as N	EPA 300.1	mg/L	< 0.10	45 (10 as N)
Nitrite as N	EPA 300.1	mg/L	< 0.10	1 (as N)
Arsenic	EPA 200.8	µg/L	< 2.0	10
<i>Bacteria</i>				
E. Coli	SM9223B	MPN/100 ml	<1	A positive result for fecal coliform or E. coli samples is an acute MCL violation ^c
Total Coliform	SM9223B	MPN/100 ml	<1	More than 1 sample per month is total coliform positive ^c

Source: Appendix F

Notes: µg/L = micrograms per liter; NTU = Nephelometric Turbidity Units; mg/L = milligram per liter; MPN = Most Probable Number
Results for undetected constituents are indicated as less than the laboratory reporting limit.

^a Secondary MCLs.

^b Recommended/Upper/Short Term Secondary MCLs.

^c MCL applies after disinfection.

3.7.2 Regulatory Framework

Federal

The Clean Water Act

The CWA (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Key sections of the act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives and establish TMDLs for each pollutant/stressor. The water quality impairments relevant to the project are shown in Table 3.7-2.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in a discharge to waters of the United States, to obtain

certification from the state that the discharge will comply with other provisions of the act. No federal approvals are necessary to permit the proposed project, and thus no CWA Section 401 certification will be required.

- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB and the nine Regional Water Quality Control Boards, who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers and the EPA. The project is not expected to require a permit under CWA Section 404.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the EPA and the U.S. Army Corps of Engineers. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) is the principal federal law in the United States that ensures safe drinking water for the public. Pursuant to the SDWA, the EPA is required to set standards for drinking water quality and oversee all states, localities, and water suppliers who implement these standards. SDWA applies to every public water system in the United States. There are currently more than 160,000 public water systems providing water to almost all Americans. The SDWA does not cover private wells. The SDWA requires the EPA to establish National Primary Drinking Water Regulations for contaminants that may cause adverse public

health effects. The regulations include both mandatory levels (MCLs) and non-enforceable health goals (Maximum Contaminant Level Goals) for each included contaminant. In California, the SWRCB Division of Drinking Water has the primary enforcement authority (primacy) to enforce the federal SDWA, and is responsible for the regulatory oversight of about 8,000 public water systems throughout the state.

State

Porter–Cologne Water Quality Control Act

The Porter–Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters. It is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state⁴ could cause pollution or nuisance, including impacts to public health and the environment.

The act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. California Water Code Section 13260 subdivision (a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the state, to file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

Basin Planning

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout

⁴ “Waters of the state” are defined in the Porter–Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code, Section 13050(e)).

California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The NCRWQCB is responsible for the protection of the beneficial uses of waters within the coastal watersheds of Northern California, including the project area.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247) (NCRWQCB 2011). The most water quality-sensitive beneficial uses applicable to the project’s receiving waters include REC-1 (Water Contact Recreation), WARM (Warm Freshwater Habitat), COLD (Cold Freshwater Habitat), WILD (Wildlife Habitat), and RARE (Rare, Threatened, or Endangered Species). Table 3.7-5 presents examples of water quality objectives applicable to surface waters within the Russian River Watershed. It is important to note that general WDRs or NPDES permits contain effluent limitations that may be stricter than basin-wide water quality objectives, because they regulate specific categories of discharge and are designed to limit the cumulative effects of development over broad areas.

Table 3.7-5
Selected Water Quality Objectives Applicable to Surface Waters
within the Russian River Watershed

Constituent	Basin Plan Objective
Turbidity	Turbidity shall not be increased more than 20% above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Floating Material (trash)	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5. In addition, changes in normal ambient pH levels shall not exceed 0.5 units within fresh waters with designated COLD or WARM beneficial uses
Temperature	At no time or place shall the temperature of any COLD water be increased by more than 5° Fahrenheit above natural receiving water temperature.
Total Dissolved Solids	90% or more of the values for a calendar year must be less than or equal to 170 mg/L and 50% or more of the values for a calendar year must be less than or equal to 150 mg/L.
Dissolved Oxygen (DO)	90% or more of the values for a calendar year must be greater than or equal to 7.5 mg/L, and 50% or more of the values for a calendar year must be greater than or equal to 10 mg/L. DO concentrations shall not be reduced below 7 mg/L at any time.
Specific Conductance	90% or more of the values for a calendar year must be less than or equal to 320 micromhos and 50% or more of the values for a calendar year must be less than or equal to 250 micromhos.
Bacteria	The median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than 10% of total samples during any 30-day period exceed 400/100 ml.

Source: NCRWQCB 2011 NPDES and WDR Programs

Notes: COLD = Cold Freshwater Habitat; WARM = Warm Freshwater Habitat; mg/L = milligrams per liter; ml = milliliter

The NPDES and WDR programs regulate construction, municipal, and industrial stormwater and non-stormwater discharges under the requirements of the CWA and the Porter–Cologne Water Quality Control Act. The construction stormwater program is administered by the SWRCB, while the municipal stormwater program and winery WDRs are administered by the NCRWQCB. Table 3.7-6 lists the water-quality-related permits that would apply to the project, each of which is further described below.

**Table 3.7-6
State and Regional Water Quality-Related Permits and Approvals**

Program/Activity	Order Number/ NPDES Number	Permit Name	Affected Area
Construction stormwater program	2009-0009-DWQ/ CAS000002, as amended	NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)	Statewide
Municipal stormwater program	R1-2015-0030/ CA0025054	NPDES Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems. Co-Permittees: County of Sonoma, City of Cloverdale, City of Cotati, City of Healdsburg, City of Rohnert Park, City of Santa Rosa, City of Sebastopol, Sonoma County Water Agency, City of Ukiah, Town of Windsor.	All MS4s within the jurisdictional boundary of each co-permittee
Winery WDRs	R1-2002-0012, as amended	General Waste Discharge Requirements (WDRs) for Discharges of Winery Waste to Land	Commercial wineries within the NCRWQCB

Notes: NPDES = National Pollutant Discharge Elimination System; MS4 = municipal separate storm sewer system; WDR = Waste Discharge Requirement

Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended). For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

According to project plans, the area of soil disturbance is expected to be approximately 2.8 acres, and therefore, the project would require coverage under the Construction General Permit.

General WDRs for Discharges of Winery Waste to Land (NCRWQCB Order No. R1-2002-0012, as amended or replaced). The NCRWQCB administers the *General Waste Discharge Requirements (WDRs) for Discharges of Winery Waste to Land* (“Winery Order”), which is designed to avoid or minimize adverse effects on water quality from winery process water discharges to land (including subsurface disposal via septic leach fields and reclaimed processed wastewater used for drip irrigation). The RWQCB defines winery waste as a byproduct of operations that produce wine, and includes bottle and barrel rinse water, equipment floor wash water, pomace, and lees. The Winery Order provides requirements for treatment, monitoring, and reporting, contains effluent limitations that must be met, and regulates the application of treated wastewater to land for the purpose of frost protection and irrigation. It also requires the application of processing wastes at agronomic rates. Surface and subsurface wastewater disposal systems are eligible for coverage under the Winery Order. A General Monitoring and Reporting Program allows determination of compliance with effluent limits, receiving water limitations, and discharge prohibitions.

Though the Winery Order from 2002 remains in effect, the NCRWQCB has issued a draft order (Order No. R1-2016-0002) and a draft conditional waiver (Order No. R1-2016-0003) that when adopted, will update and replace the terms of the existing Winery Order. This order has similar terms to the 2002 order, except that it includes other beverage and food processor wastes in addition to winery waste and will require certain facilities to prepare and implement a Nutrient Management Plan. The 2002 order did not identify nutrients or total dissolved solids as constituents of concern in winery processing waste and as such did not require dischargers enrolled in the permit to characterize the amount of nutrients or total dissolved solids in the process wastewater or process solids being discharged to land. Wineries that produce 3,000 gallons per day (gpd) or less of process wastewater as measured during the peak production period, discharge that process wastewater to land, and produce no more than 5 gallons of wastewater for each gallon of wine produced annually (5:1 wastewater to wine ratio), may apply for coverage under the conditional waiver.

Table 3.7-7 lists the numeric effluent limitations contained in Order No. R1-2016-0002.

Table 3.7-7
Numeric Effluent Limitations for Winery Processing Waste to Land for the Purpose of Disposal or Reuse

Constituent	Unit	Average Monthly Effluent Limit
<i>Above Ground Reuse or Disposal</i>		
Biological oxygen demand	lbs/acre/day	100
Ammonia as N	mg/L	1.5 OR as identified in the FNMP
Nitrate as N	mg/L	10 or as identified in the FNMP
Nitrite as N	mg/L	1 or as identified in the FNMP
Sodium	mg/L	1 or as identified in the FNMP
Chloride	mg/L	106 mg/L
pH (instantaneous)	moles/L	6 – 9
<i>Groundwater</i>		
Total coliform	MPN/100mL	1.1 (7-day median)
pH (instantaneous)	moles/L	6.5 – 8.5
Maximum Contaminant Levels (MCLs) for organic and inorganic chemicals, as listed in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4 and Article 5.5 shall not be exceeded.		

Notes: lbs/acre/day = pounds per acre per day; mg/L = milligrams per liter; FNMP = Facility Nutrient Management Plan; moles/L = moles per liter; MPN = Most Probable Number

California Safe Drinking Water Act

The SWRCB receives the majority of its statutory authority related to public health and potable water from the California Safe Drinking Water Act, as defined in the California Health and Safety Code and Titles 17 and 22, California Code of Regulations. In addition, the SWRCB Division of Drinking Water (DDW) has the primary enforcement authority (primacy) to enforce the federal SDWA, and is responsible for the regulatory oversight of about 8,000 public water systems throughout the state.

The SWRCB DDW regulates public water systems through issuance of domestic water supply permits. These permits are intended to ensure that groundwater wells have adequate water quantity and quality to support planned uses and that they comply with the Safe Drinking Water Act (Chapter 7 of the California Health and Safety Code). Private domestic wells are not regulated by the DDW, and thus the Belden well does not currently operate under a domestic water supply permit issued by DDW. However, the proposed project would require the applicant to obtain a domestic water supply permit from DDW because it would meet the definition of a “Transient Non-Community Water System.” A Transient Non-Community Water System is a water system that has fewer than 5 service connections and serves at least 25 people per day at least 60 days per year. The permit requires the applicant to submit a technical report that contains water system design information, water quality sampling data for all of the organic and inorganic

chemicals and radioactive compounds listed in the drinking water regulations, treatment system designs (if applicable), and operational plans.

California Sustainable Groundwater Act

The Sustainable Groundwater Management Act (SGMA) is a package of three bills (AB 1739, SB 1168, and SB 1319) that provides local agencies with a framework for managing groundwater basins in a sustainable manner. The SGMA establishes minimum standards for sustainable groundwater management, roles and responsibilities for local agencies that manage groundwater resources, as well as priorities and timelines to achieve sustainable groundwater management within 20 years of adoption of a Groundwater Sustainability Plan. Central to the SGMA is the identification of critically over-drafted basins and the prioritization of groundwater basins, the establishment of Groundwater Sustainability Agencies (GSAs), and the preparation and implementation of Groundwater Sustainability Plans (GSPs). GSAs must be formed by June 30, 2017, and GSPs must consider all beneficial uses and users of groundwater in the basin, as well as include measureable objectives and interim milestones that ensure basin sustainability. A basin may be managed by a single GSP or multiple coordinated GSPs.

At the state level, DWR has the primary role in the implementation, administration, and oversight of the SGMA, with the SWRCB stepping in should a local agency be found to not be managing groundwater in a sustainable manner. DWR recently approved regulations and guidelines for the implementation of the SGMA. The County contains three “medium” priority groundwater basins subject to SGMA: Sonoma Valley, Petaluma Valley, and the Santa Rosa Plain, none of which are in critical overdraft. No formal GSAs have been established in Sonoma County. Currently, a working group comprised of staff from the agencies that are eligible to serve as GSAs (including the Sonoma County Permit and Resource Management Department (PRMD) and the Sonoma County Water Agency) are working with the facilitator to develop a recommended process for forming GSAs.

Local

The following local/regional regulations pertaining to hydrology and water quality would apply to the proposed project.

Sonoma County General Plan 2020

In recognition of the importance of water resources within unincorporated areas of the County, a Water Resource Element was developed and included in the *Sonoma County General Plan 2020* (County of Sonoma 2008). The main purpose of the Water Resources Element is to ensure that Sonoma County’s water resources are sustained and protected.

- Policy WR-1c** Prioritize stormwater management measures in coordination with the RWQCB direction, focusing first upon watershed areas that are urbanizing and watersheds with impaired water bodies. Work cooperatively with the RWQCBs to manage the quality and quantity of stormwater runoff from new development and redevelopment in order to:
1. Prevent, to the maximum extent practicable, pollutants from reaching stormwater conveyance systems.
 2. Ensure, to the maximum extent practicable, that discharges from regulated municipal storm drains comply with water quality objectives.
 3. Limit, to the maximum extent practicable, stormwater from post development sites to pre-development quantities.
 4. Conserve and protect natural areas to the maximum extent practicable.
- Policy WR-1g** Minimize deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater.
- Policy WR-1h** Require grading plans to include measures to avoid soil erosion and consider upgrading requirements as needed to avoid sedimentation in stormwater to the maximum extent practicable.
- Policy WR-1q** Require new development projects to evaluate and consider naturally-occurring and human caused contaminants in groundwater.
- Policy WR-2d** Continue the existing program to require groundwater monitoring for new or expanded discretionary commercial and industrial uses using wells. Where justified by the monitoring program, establish additional monitoring requirements for other new wells.
- Policy WR-2e** **(formerly RC-3h)** Require proof of groundwater with a sufficient yield and quality to support proposed uses in Class 3 and 4 water areas. Require test wells or the establishment of community water systems in Class 4 water areas. Test wells may be required in Class 3 areas. Deny discretionary applications in Class 3 and 4 areas unless a hydrogeologic report establishes that groundwater quality and quantity are adequate and will not be adversely impacted by the cumulative amount of development and uses allowed in the area, so that the proposed use will not cause or exacerbate an overdraft condition in a groundwater basin or subbasin. Procedures for proving

adequate groundwater should consider groundwater overdraft, land subsidence, saltwater intrusion, and the expense of such study in relation to the water needs of the project.

Santa Rosa Plain Watershed Groundwater Management Plan

The Santa Rosa Plain Groundwater Management Plan, adopted in 2014, is a voluntary groundwater management plan that pre-dates the requirements of SGMA. The project site is within the Santa Rosa Plain Watershed Groundwater Management Plan area. Though the project is not located within any DWR-designated groundwater basin, it is within the “upland” area of the plan, which includes 102 square miles of watersheds that provide much of the precipitation and runoff that feeds the groundwater aquifers beneath the Santa Rosa Plain. The goal of the plan is to locally manage and protect groundwater resources through non-regulatory measures to support all beneficial uses, including human, agriculture, and ecosystems, in an environmentally sound, economical, and equitable manner for present and future generations. Management components included in the plan address a variety of topics including encouraging stakeholder involvement, improving monitoring and modeling efforts for surface and groundwater resources, groundwater protection (e.g., through improved well management, protection of recharge areas, and educational tools), and increased conservation, efficiency and water reuse.

County Policies in Areas of Marginal Groundwater Availability

The Sonoma County PRMD is the local agency responsible for administering permits for well construction. The PRMD also reviews all discretionary development proposals within unincorporated areas that will rely on wells for water supply. The PRMD has developed a four-tier classification system, based on geologic information and water yields, to designate general areas of groundwater availability. Class 1 areas are Major Groundwater Basins; Class 2 areas are Major Natural Recharge Areas; Class 3 areas are Marginal Groundwater Availability Areas; and Class 4 areas are Areas with Low or Highly Variable Water Yield. The proposed project is within a Class 3 area. Discretionary applications in Class 3 and 4 areas are required to include hydrogeologic reports to establish that groundwater quality and quantity are adequate and will not be adversely impacted by the cumulative developments and uses allowed in the area. The aim is to avoid causing or exacerbating an overdraft condition in a groundwater basin or subbasin. Appendix F has been prepared in compliance with this requirement.

Sonoma County Code of Ordinances

The following Sonoma County Code of Ordinances would apply to the proposed project. The code is implemented by the Sonoma County PRMD.

- **Chapter 7 – Building Regulations** provides the building regulations that would apply to the construction elements of the project.

- **Chapter 11 – Grading, Drainage, and Vineyard and Orchard Site Development Regulations** provides the regulations for the grading and drainage construction elements of the project.
- **Chapter 24 – Sewers and Sewage Disposal** is also referred to as the Sonoma County On-Site Sewage Ordinance and provides the regulations that would apply to the construction and operation of private sewage treatment and disposal systems.

Bennett Valley Area Plan

The Sonoma County General Plan is augmented by a number of local plans called Area Plans. The proposed project is located within the Bennett Valley Plan Area. The Bennett Valley Area Plan is consistent with the General Plan, and adherence to general plan policies would also ensure conformance with the Bennett Valley Area Plan.

3.7.3 Impacts and Mitigation Measures

3.7.3.1 Significance Criteria

The significance criteria for this hydrology and water quality impact analysis are adapted from the California Environmental Quality Act Guidelines, Appendix G. Based on the guidelines, hydrology and water quality impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site.
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site.
5. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
6. Otherwise substantially degrade water quality.

7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
9. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
10. Inundation by seiche, tsunami, or mudflow.

Certain issues identified in the significance criteria are not considered impacts of the proposed project and are discussed briefly below.

According to the FEMA FIRM for the project area, the project site is not located within the 100-year flood plain (DWR 2015). The project's position on a local high point means the risk of significant flooding on the site would be negligible to null. The majority of the project site is approximately 910 to 1070 feet above sea level and is located approximately 20 miles from the San Francisco Bay and the Pacific Ocean. As such, the project site is not at risk of inundation by a tsunami. The project site is not located adjacent to any lake or reservoir in which a seiche could occur.

3.7.3.2 Impact Discussion

Impact HYD-1: The project could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. This would be a potentially significant impact.

Impacts to water quality through exceedance of water quality standards, non-conformance with WDRs, or by other means can potentially result from the short-term effects of construction activity on stormwater runoff (e.g., erosion and sedimentation due to land disturbances, uncontained material and equipment storage areas, improper handling of hazardous materials), the long-term effects of changes in land cover on stormwater runoff (e.g., alteration of drainage patterns or increases in impervious surfaces), or non-stormwater discharges such as subsurface disposal of treated wastewater or use of reclaimed wastewater for irrigation. As discussed in Section 3.7.2, the applicable water quality standards are presented in the *Water Quality Control Plan for the North Coast Region*; they include both numeric and narrative standards, and are periodically updated or re-evaluated to reflect the latest state of knowledge on the environmental and human health effects on various contaminants and constituents of concern. Table 3.7-5, above, presents applicable surface water quality objectives contained within the basin plan applicable to surface waters.

The proposed project's potential impacts on water quality associated with stormwater and non-stormwater discharges are discussed in the following sections. It should be noted that for all stormwater-related impacts, the receiving waters for runoff from the site, in all but peak flow events, would be the on-site pond and the off-site pond along Sonoma Mountain Road. Only when the ponds reach capacity and begin overflowing would drainage from the site actually contribute to flows within the South Fork Matanzas Creek and further downstream.

Stormwater Runoff during Construction

Construction activities such as demolition, grading, excavation, and trenching associated with construction of the proposed facilities is expected to result in land disturbance of approximately 2.8 acres over 12- to 18-month period. An improperly managed construction site can result in temporary turbidity increases in receiving waters due to suspended soil particles and sediment in stormwater runoff, increases in dust and wind erosion, fluid spills or leaks from heavy equipment and machinery, or introduction of other pollutants into local waterways. Pollutants typically present on construction sites include petroleum products and heavy metals from equipment, and products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Construction activities could result in water quality degradation if runoff containing the sediment entered receiving waters in sufficient quantities to exceed water quality objectives. Impacts from construction-related activities would generally be short term and of limited duration.

Because implementation of the project would collectively require construction activities resulting in a land disturbance of more than 1 acre, the applicant is required to obtain coverage under the Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended), which pertains to pollution from grading and project construction. Coverage under the Construction General Permit requires a qualified individual (as defined by the SWRCB) to prepare a SWPPP to address the potential for construction-related activities to contribute to pollutants within the project's receiving waterways. The SWPPP must describe the type, location and function of stormwater BMPs to be implemented, and must demonstrate that the combination of BMPs selected are adequate to meet the discharge prohibitions, effluent standards, and receiving water limitations contained in Construction General Permit.

The following list includes examples of construction water quality BMPs that are standard for most construction sites subject to the Construction General Permit:

- Silt fences or fiber rolls installed along limits of work or the project construction site
- Stockpile containment and exposed soil stabilization structures (e.g., visqueen, fiber rolls, gravel bags and/or hydroseed)

- Runoff control devices (e.g., fiber rolls, gravel bag barriers/chevrons, etc.) used during construction phases conducted during the rainy season
- Wind erosion (dust) controls
- Tracking controls at the site entrance, including regular street sweeping and tire washes for equipment
- Prevention of fluid leaks (inspections and drip pans) from construction vehicles
- Materials pollution management
- Proper waste/trash management
- Regular inspections and maintenance of BMPs.

These BMPs would be refined or added to as necessary by a qualified SWPPP professional to meet the performance standards in the Construction General Permit.

To obtain coverage under the Construction General Permit, the applicant must submit to the SWRCB a Notice of Intent and associated permit registration documents, including a SWPPP and site plan, and must obtain a Waste Discharge Identification Number. As a condition of grading permit approval, the applicant is required to provide the Notice of Intent and Waste Discharge Identification Number to the Grading and Storm Water Section of the PRMD, and must include the water quality BMPs on construction plans and drawings. In addition, all earthwork, grading, trenching, backfilling and compaction operations must be conducted in accordance with the erosion control provisions of the Grading, Drainage, and Vineyard and Site Development Regulations (Chapter 11, Sonoma County Code), Stormwater Quality Ordinance (Chapter 11A, Sonoma County Code) and Building Ordinance (Chapter 7, Sonoma County Code).

The BMPs required for coverage under the Construction General Permit and the erosion control provisions of the Grading and Stormwater Quality Ordinances would prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within applicable receiving waters. For these reasons, water quality impacts resulting from construction-related activities and ground disturbances would be less than significant.

Long-Term Effects on Stormwater Runoff

As discussed in Section 3.7.1, Environmental Setting, soil types and land cover within the watershed have important roles in determining the timing and magnitude of stormwater runoff because both influence the degree to which rainfall is translated into runoff (as opposed to being retained or infiltrated into the ground). Changes in topography and impervious surface coverage can incrementally alter the natural hydrologic regime in such a way as to increase peak flows in

the watershed and result in accelerated streambank erosion within drainages and area waterways. As indicated in Table 3.7-2, flow alteration and streambank destabilization are listed as sources of the CWA Section 303(d) impairments for sediment and temperature applicable to the watershed. In addition, certain facility operation and maintenance activities such as waste management, livestock management, and outdoor events, if improperly managed and exposed to stormwater runoff, have the potential to adversely affect water quality by contributing nutrients, pathogens, or litter to receiving waters. Regionally, old or malfunctioning septic systems, for example, are contributing to the section CWA Section 303(d) impairment listing for indicator bacteria (pathogenic compounds) in the Russian River watershed.

Based on review of the existing site (including aerials and a site visit) compared to the preliminary grading and drainage plan, the proposed facilities are not expected to substantially change drainage patterns or result in significant increases in stormwater runoff rates or volumes. The proposed project's effects on impervious surfaces and topography/drainage are as follows:

- **Impervious Surfaces:** Existing buildings and structure pads on the site together consist of approximately 11,797 square feet (0.3 acre) of existing impervious surfaces, which are dispersed and disconnected. The proposed on-site roads would consist of pervious Class II aggregate base. Americans with Disabilities Act (ADA)-compliant parking would consist of pervious pavement. Runoff from these surfaces are conveyed by roof drains or otherwise dispersed as sheet flow. The project would result in an increase of 13,500 square feet of impervious surfaces. Like the existing site, these new structures would be disconnected. Roof downspouts are proposed to be disconnected with overland flow (over grass or vegetation) to a bioretention swale, or to discharge directly to a bioretention infiltration swale. After bioretention, storm drains discharge to buffer strips.
- **Topography and Drainage:** Review of the grading plan indicates cuts into slopes to accommodate structure pads and retaining walls would be localized and not sufficiently large to change the general trend of topography or direction of drainage patterns. Like existing conditions, drainage in the developed portion of the site would continue to be directed to the north and east toward the intermittent drainage channel that crosses the northeastern corner of the parcel. Where structures or road pads intercept sheet flow, swales or underground pipes would be placed to direct drainage through or around the structures. The main access drive and parking sheet are proposed to flow to a bioswale with native grasses and discharge to bioretention basins. The bio retention basins discharge to existing vegetated buffer strips prior to sheet flow to the existing ephemeral drainage along the east and northeast sides of the property.

The applicant has prepared a Preliminary Standard Urban Stormwater Mitigation Plan (SUSMP; Steve Martin Associates 2016) that identifies existing and proposed impervious surfaces and identifies the location, type and size of permanent stormwater BMPs. The project plan includes

measures such as interceptor trees, roadside bioretention, vegetated swale with bioretention, infiltration trench, and pervious pavement. Other proposed BMPs include bioswales, rock rip-rap discharge flares, and turf landscape areas around building perimeters. The SUSMP demonstrates that each drainage area on the property is served by a LID BMP (bioretention swale or infiltration basin) that are sized to capture at least 100% of the volume of runoff generated by the 85th percentile 24-hour storm event, as required in the Municipal Separate Storm Sewer System (MS4) Permit. Most of the LID features capture more than the required amount, ranging from 102% to 146% of the required stormwater capture volume (Steve Martin Associates 2016). The applicant proposes to maintain permanent BMPs with existing on-site employees. Examples of maintenance activities would include routine clearing of debris and mowing, as required, for bioswales, maintenance of turf areas, routine sweeping of cobble paving, and vegetation maintenance.

Prior to grading and building permit approvals, and in accordance with the Sonoma County Water Agency's Flood Control Design Criteria and the Sonoma County Code Sections 11.16.040 and 11.16.050, a drainage report for the proposed project must be prepared and include, at a minimum, a project narrative, on-site and off-site hydrology maps, hydrologic calculations, hydraulic calculations, and pre-development and post-development analysis for all existing and proposed drainage facilities. The final drainage report shall abide by and contain all applicable items in the Drainage Report Required Contents (DRN-006) handout. These reports are currently prepared as a condition of use permit approval; however, based on the location and size of proposed facilities relative to the size of the watershed and existing condition, increases in runoff attributable to the project are expected to be minor and would be conveyed without flooding or significant erosion in drainage features and BMPs included as part of the Preliminary SUSMP.

While minor, the increases in runoff have the potential to contribute to cumulative environmental impacts to an impaired watershed. The facility operations, including management of trash receptacles, facilitation of outdoor events, animal husbandry, and equipment/vehicle maintenance activities have the potential to contribute pollutants such as litter, nutrients/pathogens, or grease and oils if improperly managed and entrained in stormwater runoff. Trash enclosures are required as a condition of approval and will be located next to the winery creamery building. The project's preliminary SUSMP focused on treatment control BMPs to minimize runoff rates and volumes associated with impervious surfaces but did not include source control BMPs to address potential pollutant sources (e.g., nutrients and pathogens) associated with animal husbandry. The watershed has a CWA Section 303(d) impairment for pathogens. For these reasons, the impacts associated with the proposed facilities are considered potentially on both a project level and cumulatively without mitigation.

Non-Stormwater (Treated Wastewater) Discharges

Production areas for wine and cheese processing are under roof or on concrete slabs adjacent to the crush/receiving canopy used for vehicle and forklift access. These areas drain directly to the process water system, and do not drain as stormwater (Steve Martin Associates 2016).

If project wastewater (sanitary and process water) did not undergo proper treatment or disposal, and were to come into contact with surface waters or groundwater, it could reduce water quality, and potentially violate water quality standards prescribed in the Basin Plan, as well as state and County public health standards prescribed in the County ordinance on sewage disposal. Winery process wastewater would contain grape residuals and other residues, and would likely become acidic from the grape juice; improperly treated sanitary wastewater could contribute nutrients, pathogens and other contaminants to the soil or groundwater. The biochemical oxygen demand levels of wastewater generated by a cheesemaking facility (with the exception of whey) are around 2,000 mg/L, which is less than that of a winery (5,000–10,000 mg/L) (Steve Martin and Associates 2014). As a result, the proposed treatment and disposal of the process wastewater for both facilities would be the same. Though on-site wastewater treatment systems can be safe and effective in removing contaminants, they must be properly designed and regularly monitored and maintained to avoid the potential for such systems to adversely affect surface water or groundwater.

A properly located and designed septic system and leach field is not a threat to water quality (NCRWQCB 2011). The Basin Plan and County well and septic policies (including Policy 9-2-17, Sonoma County Site Evaluation and Percolation Test Methods) include septic system siting, sizing, and design guidelines intended to protect water quality and comply with Basin Plan provisions. Applicable criteria are compared to the proposed system in Table 3.7-8 below. Note this Table 3.7-8 presents a subset of the criteria, mainly with regard to setbacks, and is not all-inclusive. The County will require compliance with applicable standards as part of use permit approval and issuance of the certificate of occupancy.

**Table 3.7-8
Soil, Groundwater, and Minimum Setback Criteria for On-Site
Wastewater Treatment Systems**

Element	Tank/Sump Criteria	Leaching Field Criteria	Proposed Project
Depth of groundwater below leaching trench	—	> 5 feet	> 50 feet
Soil percolation rate	—	> 1 inch/hr	2 inches/hr
Minimum distance to water supply well	100 feet	100 feet	175 feet
Minimum distance to ephemeral stream	25 feet	50 feet	125 feet
Minimum distance to cut banks, natural bluff or sharp changes in slope	25 feet	25 feet	120 feet
Minimum distance to unstable land forms	50 feet	50 feet	400 feet

Source: NCRWQCB 2011, Sonoma County Policy 9-2-17.

The proposed project would upgrade the existing on-site wastewater system to handle both sanitary and process wastewater flows from the proposed facilities. Steve Martin and Associates (2014) prepared a wastewater feasibility study that describes anticipated wastewater flows, septic tank and leach field (filled land system) sizing requirements, and treatment processes that would be required to serve the peak wastewater demands of the project. Wastewater to be generated by the project is classified as sanitary wastewater (i.e., necessary to serve the restrooms, laboratory facilities, and the tasting room) and process wastewater (i.e., collected by floor and trench drains in the course of tank, barrel, and equipment rinsing and cleaning activities). The on-site wastewater treatment and disposal facilities have been sized to accommodate conservative estimates of peak generation rates, including the required expansion/reserve areas.

The anticipated wastewater generation volume and flows are summarized as follows (Steve Martin and Associates 2014):

- **Sanitary Wastewater:** The average sanitary wastewater generation rate is expected to be approximately 155 gpd on weekdays and 210 gpd on weekends, with a peak rate of 355 gpd occurring in the worst-case scenario of a weekend event overlapping with a peak harvest day.
- **Process Wastewater:** The annual volume of process wastewater generated by the project is estimated to be 120,000 gallons for wine processing, and 18,750 gallons for cheese production, for a total of 138,750 gallons. The average process wastewater generation rate is expected to be approximately 380 gpd, with a peak week harvest generation rate of 1,730 gpd with the conservative assumption that peak cheese and wine processing periods occur concurrently.

Process wastewater would be pretreated through filters and settling/septic tanks and then disposed of in a filled-land standard leachfield system. After a combination of anaerobic and aerobic treatment in the leach lines and adjacent trench soil, the treated wastewater percolates through the soil for final polishing. Ultimately, the treated effluent migrates into the groundwater minus the volume consumed via evapo-transpiration. The reserve system would be AdvanTex treatment system with drip irrigation of reclaimed wastewater on designated blocks of the vineyard. Additional information on the design septic system design is provided in Chapter 2, Project Description.

As discussed in Section 3.7.2, California Water Code Section 13260 subdivision (a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system that could affect the quality of the waters of the state, to file a Report of Waste Discharge with the RWQCB. The Report of Waste Discharge would consist of compliance with the RWQCB North Coast Region Order No. R1-2002-0012, *General Waste Discharge Requirements (WDRs) for Discharges of Winery Waste to Land*, or the more recent *General WDRs and*

Conditional Waiver of WDRs for Discharges of Wine, Beverage and Food Processor Waste to Land or waiver (NCRWQCB Draft Order No. R1-2016-0002 and R1-2016-0003) if officially adopted. Coverage under the general WDR or conditional waiver will require the applicant to implement a monitoring and reporting program and submit reports either annually or semiannually to the NCRWQCB describing its inspection, maintenance, and monitoring activities. The monitoring and reporting program requires the applicant to describe process, production, and wastewater monitoring information, including but not limited to the following: (1) the type and volume of raw material being processed; (2) the dates of peak processing season; (3) the wastewater to wine production ratio; (4) the gallons of process wastewater discharged daily to the disposal system (reported in gallons per day (gpd)), as averaged over a calendar month in which peak production was taking place; and (5) septic tank and leachfield inspection and monitoring results.

The NCRWQCB will issue a Notice of Coverage letter when coverage under the appropriate WDR has been authorized. Final occupancy shall not be issued until the applicant provides the Notice of Coverage, and the applicant shall include the County on any submittal of annual reports to the NCRWQCB. Furthermore, the proposed system would require County review by a Project Review Health Specialist, which would include ensuring the system is consistent and compliant with County policies (e.g., PRMD Policies 9-7-17 and 9-2-31, and Chapter 24 of the County Code of Ordinances), and verifying that all wastewater treatment system conditions have been met prior to issuance of a certificate of occupancy.

All WDRs in the North Coast Region are required to implement the Basin Plan. Therefore, the proposed wastewater system would comply with all applicable Basin Plan provisions, including any prohibitions and water quality objectives, governing the discharge. The impact of the wastewater treatment and disposal system on water quality would be less than significant.

Mitigation

MM-HYD-1 Final Standard Urban Stormwater Mitigation Plan. The applicant shall prepare a Final Standard Urban Stormwater Mitigation Plan (SUSMP) that demonstrates consistency with the requirements and standards in the currently adopted version of the *Storm Water Low Impact Development Technical Design Manual*. The applicant shall provide the Final SUSMP to the Engineering Section of the Permit and Resource Management Department as a condition of grading permit approval. Engineering Section staff shall not sign-off building or grading plans for issuance until they are satisfied that the plans meet all stormwater best management practices. Final occupancy shall not be issued until correct installation has been verified by Engineering Section staff.

The Final SUSMP shall identify all pollutants sources, including livestock operations, and incorporate source control Best Management Practices (BMPs) that avoid sources of nutrients, pathogens, and other pollutants within stormwater runoff. At a minimum, these measures shall include:

- Concentrated runoff shall be avoided in areas that may contain manure, such as pasture and animal enclosures. Animals shall be excluded from grazing within 30 feet of the top of bank of the ephemeral drainage course on site.
- Rotations and grazing timing/seasonal use shall be managed in pasture areas to avoid overgrazing and erosion (i.e., decreased infiltration of stormwater water and increased potential for sediment and nutrients to reach local creeks).
- Animal enclosures shall be kept clean and mud-free, and manure shall be regularly removed and composted. Manure that is not composted should be stored under cover and in an area that will not have contact with stormwater runoff, using a tarp or a properly sized manure storage area that has a roof.
- The landscape shall be designed to minimize use of fertilizers and pesticides.
- All dumpsters and/or recycling containers shall be contained within a roofed and enclosed area, or an area that directs runoff to the on-site wastewater treatment system. Litter and trash shall be contained so that it is not dispersed by the wind or runoff during waste removal.
- Loading/unloading and cleaning/processing areas associated with the production facility shall be indoors or in a roofed area outdoors plumbed to the sanitary wastewater system. These areas shall be designed to prevent stormwater run-on from entering the wastewater treatment system and to prevent stormwater run-off from carrying pollutants to the bioswales or intermittent drainage.

The applicant shall inspect and maintain the stormwater drainage facilities in accordance with the SUSMP. The applicant shall assure that all BMPs remain fully functional and that all areas identified in the SUSMP for treatment or volume capture discharge to the specified BMP as designed. The applicant shall, at a minimum, conduct annual inspections of BMPs and shall keep all records related to BMP maintenance for a period of at least 5 years. The records shall include records of any BMP Facilities corrections, repairs, and replacements. The applicant shall make these records available to the County upon request.

Significance of Impact After Mitigation

Implementation of mitigation measure MM-HYD-1 (Post-Construction Stormwater Management Plan) requires the applicant to integrate LID and water quality BMPs into its facility design and operation and maintenance activities. Examples of such features include rain gardens, rainwater harvesting, flow-through planters, use of pervious pavement, minimizing and disconnecting impervious surfaces, stream setbacks and buffers, roadside bioretention, vegetated swales with bioretention, and infiltration trenches. These LID and water quality BMPs are standard and well-understood measures, which are required, for example, in the County's municipal separate storm sewer system (MS4) permit (NCRWQCB Order No. R1-2015-0030). With implementation of MM-HYD-1, the long term effects of the project on the quality and quantity of stormwater runoff would be **less than significant**.

Impact HYD-2: The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted and would not result in depletion of interconnected surface water flows. This would be a less-than-significant impact.

The project parcel's total proposed well water demand, including project uses, is estimated to be approximately 3.54 AFY, representing the well water needs for the winery production facility, tasting room, on-site residences, ornamental landscaping, orchard, vegetable garden, and livestock uses. The water demand would be served from the on-site well (Well A-1), which currently serves the existing owner's residence, farmworkers' dwelling, and surrounding grounds, and has a production capacity of 23 gallons per minute based on the capacity of the existing well pump. Well A-1 has a depth of 690 feet and is screened in Upper Petaluma Formation and Sonoma Volcanics. No new well or any well upgrade or reconstruction is proposed. Surface water from the on-site pond would continue to serve as the source for irrigation of the on-site vineyards and 80% of the orchard and vegetable garden demands. The well water demand estimate for the project is provided in Table 3.7-9, which shows an increase of 1.77 AFY, or double the current estimated well water demand of 1.76 AFY on the site.

**Table 3.7-9
Well Water Demands**

Type of Use	Average Day (gpd)	Peak Day (gpd)	Annual Water Demand (Gallons)	Annual Water Demand (Acre-Feet)
<i>Existing Uses</i>				
Domestic use	1,200	1,340	489,100	1.5
Orchard (1 acre) ^a	180	180	43,920	0.13
Vegetable garden (1 acre) ^a	180	180	43,920	0.13
TOTAL	1,560	1,700^b	576,940	1.76
<i>Proposed Uses^c</i>				
Domestic use	1,200	1,340	489,100	1.50
Orchard (2 acres) a	360	360	87,840	0.27
Vegetable garden (2 acres) a	360	360	87,840	0.27
Sanitary water	178	355	64,835	0.20
Process water	380	1,712	138,750	0.43
Landscape (+/- 1 acre)	1,854	2,000	263,488	0.81
Livestock	63	63	22,995	0.07
TOTAL	4,395	6,190^b	1,154,848	3.54
<i>Net Increase</i>				
Domestic use	0	0	0	0.00
Orchard (2 acres) ^a	180	180	43,920	0.13
Vegetable garden (2 acres) ^a	180	180	43,920	0.13
Sanitary water	178	355	64,835	0.20
Process water	380	1,712	138,750	0.43
Landscape (+/- 1 acre)	1,854	2,000	263,488	0.81
Livestock	63	63	22,995	0.07
TOTAL	2,835	4,490^b	577,908	1.77

Source: Appendix F.

Notes:

- ^a Irrigation for the orchards and vegetable gardens will continue to be provided by the irrigation reservoir which is supplied with surface runoff. Conservatively, the irrigation is included in the above table and respective well supply.
- ^b Peak days do not overlap, so this total is an artificially high number.
- ^c Note the one-time use of 40,000 gallons to fill the fire suppression tanks are not included in this table because they are not ongoing annual demands. The tanks would be refilled following fire emergencies when they are put to use.

Compared to typical water demands associated with irrigating vines and the volume of groundwater available in the underlying aquifers, an annual water demand of 3.80 acre-feet represents a minor use. For example, 20 acres of vines can be expected to require 8 AFY, assuming a water demand of 0.4 acre inches (Kleinfelder 2003). Nevertheless, the area is underlain by aquifer materials known to have variable, often poor, water yields; the larger Bennett Valley region has shown evidence of a long-term declining water levels trend; and neighboring rural residents rely on groundwater as their sole source of water. Accordingly, a groundwater resources technical report, included as Appendix F, was prepared to develop a

greater understanding of the aquifers underlying the project and vicinity, and to evaluate the potential effects of the increased use of groundwater on aquifer storage and well interference.

To evaluate the impacts of the proposed use of well water to supply the project's water demands, the groundwater report describes (1) research and literature review on the site's geology and groundwater conditions, (2) a field inventory of water well on-site and on adjacent parcels, (3) establishment of a short term well monitoring network, (4) a 24 hour pump test, (5) a water balance evaluation, and (6) a well interference evaluation. The main findings of Appendix F are as follows:

- **Data confirms the project site and related watershed is underlain by two distinct aquifer systems: the Petaluma Formation and the Sonoma Volcanics.** Though there is some interfingering of the two hydrogeologic units, water level trends observed over a 2-month period for wells screened in the Petaluma Formation versus those screened in the Sonoma Volcanics showed distinct water level trends despite their close proximity. This provides strong evidence that the processes governing the origin and movement of groundwater in each differ.
- **Water level trends observed in the Petaluma Formation indicate it is near 100% of its storage capacity.** The water level trend of a shallow well completed only in the Petaluma Formation remained flat over a 2-month period, showing no long-term response to significant rainfall. Slight increases in water level following storm events were minor in magnitude and short lived, suggesting that infiltrating water is being discharged to streams during the wet season and that the aquifer is at its saturation point.
- **Water level trends observed in the Sonoma Volcanics show evidence of pumping influences in the greater region.** The water level trend of two deep wells (including the project well) screened primarily in the Sonoma Volcanics showed increasing water levels over the 2-month period monitored. The smooth, gradual increase in water levels had little correlation with rainfall patterns and was occurring at depths unlikely to have been recharged so rapidly from recent rains. The water trend observed suggests water levels are recovering from off-site pumping, possibly seasonal (late summer and fall) irrigation in southern Bennett Valley.
- **No appreciable drawdown in monitored wells occurred over the course of the 24-hour pump test of the project well.** The project well was drawn down 6.7 feet during the 24-hour pump test (at the well's maximum capacity of 23 GPM) and recovered to 100% of its original level within 5 minutes of ending the test. None of the off-site wells exhibited an observable response to the well test.
- **Recharge substantially exceeds groundwater extraction, based on the water balance analysis.** Precipitation, evapotranspiration, runoff, groundwater extraction, and recharge

within the watershed was simulated over a 30 year period, assuming buildout of General Plan land uses. Over that time frame, withdrawals from the aquifer never caused a decrease of less than 99.8% of the total groundwater in storage.

- **Theoretical calculations of drawdown versus distance from the project well show no appreciable drawdown at any off-site well.** The maximum drawdown at the closest off-site well was calculated to be 0.73 feet after a period of 5 years, assuming continuous pumping of the project well at its maximum capacity, or about 10 times the project's groundwater demand. Less than a foot is not sufficient to cause the water level to drop below a screened interval or substantially impact yield.

The findings above together indicate that the project parcel's well water demand of 3.54 AFY would have negligible effects on the underlying aquifer. The results indicate that there would be neither a net deficit in aquifer volume nor a lowering of the local groundwater table level sufficient in magnitude to affect the production rate of pre-existing nearby wells.

The nearest perennial stream to the project well (Well A-1) is South Fork Matanzas Creek, located about 1,400 feet to the south. Appendix F found no impacts to surface waters from use of groundwater due to the distance between the well and the nearest creek; depth of the well; and a lack of hydrologic connectivity and substantial thickness of impermeable clays between the surface and the screened interval of the well. Based on the nature of the watershed, boring log lithologies, and groundwater level records, the project well draws from a semi-confined or confined aquifer that is not directly hydrologically connected to alluvial deposits or surface water. Consequently, the impacts would be less than significant.

In an abundance of caution, however, and to ensure unanticipated impacts on groundwater do not occur, and consistent with County General Plan Policy 2(d), standard conditions of approval, as described below, would require the applicant to monitor its groundwater usage and the long-term water level trends in the project well, and submit the data yearly to the Sonoma County Permit and Resource Management Department (PRMD).

Prior to occupancy, the water well serving this project shall be fitted with groundwater level sounding tube and port, or electronic groundwater level measuring device. The existing water meter on the well shall be calibrated, and copies of receipts and correction factors shall be submitted to PRMD Project Review staff at least once every 5 years.

Groundwater elevations and quantities of groundwater extracted from the project well shall be monitored quarterly and reported to PRMD in January of the following year. The report submitted to PRMD shall include, at a minimum, the following information related to the project well: (1) water level hydrographs and tabulated water level data, (2) tabulated groundwater production volumes, and (3) documentation of static water level drawdown observed, if any. The

report shall be completed by a Professional Geologist or Certified Hydrogeologist registered in the State of California, and shall include an interpretation of the data collected.

In the event that water use exceeds 3.54 acre-feet per year, PRMD may bring this matter back to the Board of Zoning Adjustments for review of additional measures to reduce water use.

Mitigation

No mitigation measures are required.

Impact HYD-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site. This would be a potentially significant impact.

As discussed in the setting, a small unnamed ephemeral drainage runs in a northwest direction along the east and north edge of the property. As indicated in mitigation measure MM-BIO-4 (Section 3.4.3), the project would adhere to a 30-foot buffer from the bank of the unnamed drainage. Therefore, the project would not have any direct impacts with respect to stream alteration.

However, as discussed in greater detail under Impact HYD-1, the project would increase the amount of impervious surfaces and therefore cause minor increase in the rate and volume of stormwater runoff. Implementation of MM-HYD-1 would ensure the project is designed with LID strategies and water quality BMPs necessary to ensure the increase in the rate and volume of runoff is captured and treated. This would ensure the project would not result in substantial erosion or siltation on or off site; the impacts with respect to this criterion is less than significant with implementation of MM-HYD-1.

Mitigation

See MM-HYD-1, Final Standard Urban Stormwater Mitigation Plan.

Significance of Impact After Mitigation

Implementation of the above mitigation measure would reduce potential impacts to **less-than-significant levels**.

Impact HYD-4: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. This would be a significant impact.

As discussed in Section 3.7.1, Environmental Setting, a small unnamed ephemeral drainage runs in a northwest direction along the east and north edge of the property. As indicated in mitigation measure MM-BIO-3 (Section 3.4.3), the project would adhere to a 30-foot buffer from the bank of the unnamed drainage. Therefore, the project would not have any direct impacts with respect to stream alteration. However, as discussed in greater detail under Impact HYD-1, the project would increase the amount of impervious surfaces and therefore cause minor increase in the rate and volume of stormwater runoff, which could result in flooding. This would be a significant impact.

Mitigation

See MM-HYD-1, Final Standard Urban Stormwater Mitigation Plan.

Significance of Impact After Mitigation

Implementation of MM-HYD-1 would ensure the project is designed with LID strategies and water quality BMPs necessary to ensure the increase in the rate and volume of runoff is captured and treated, in accordance with the provisions of the Regional MS4 Permit. This would ensure the project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site. Thus, Impact HYD-4 would be **less than significant** with implementation of MM-HYD-1

Impact HYD-5: The project could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. This would be a potentially significant impact.

The project site is located within a rural, low density area within Sonoma County and is not served by a public, planned, or engineered stormwater drainage system. Runoff from the site would either infiltrate on site, collect in the irrigation pond, or flow off site towards the South Fork Matanzas Creek. As discussed in greater detail under Impact HYD-1, the project would increase the amount of impervious surfaces and therefore cause a minor increase in the rate and volume of stormwater runoff, which could also result in additional sources of polluted runoff. This would be a potentially significant impact.

Mitigation

See MM-HYD-1, Final Standard Urban Stormwater Mitigation Plan.

Significance of Impact After Mitigation

Implementation of MM-HYD-1 would ensure the project is designed with LID strategies and water quality BMPs necessary to ensure the increase in the rate and volume of runoff is captured and treated, in accordance with the provisions of the Regional MS4 Permit. This would ensure

the project would not substantially increase the rate or amount of surface runoff or generate substantial additional sources of polluted runoff. Furthermore, the design and sizing of the storm water drainage system shall be in compliance with the adopted Sonoma County Water Agency Flood Control Design Criteria, 1983 or most recently revised edition. For these reasons, Impact HYD-5 would be **less than significant** with implementation of MM-HYD-1.

3.7.3.3 Cumulative Impacts

Impact HYD-11: The project would not contribute to cumulative impacts with respect to hydrology and water quality. This would be a less-than-significant impact.

Past development has resulted in impairment in the region's major waterways. These impairments are identified in Table 3.7-2, and indicate waters within the Russian River watershed are impaired with indicator bacteria, sediment, and temperature (i.e., in places too high to support cold-water species). This is an existing condition. As discussed in Impact HYD-1, stormwater impacts would be primarily cumulative impacts, and would not be cumulatively considerable with the implementation of mitigation measure MM-HYD-1. MM-HYD-1 originates from or is derived from NPDES measures that address cumulative impacts.

Appendix F includes an analysis of groundwater impacts in the cumulative scenario, using a 962-acre watershed area corresponding to the contributing watershed of a portion of the South Fork Matanzas Creek. Water demands within the watershed were estimated based on review of existing land use, dwelling units, and cultivated areas present; future water demands were estimated by projecting anticipated growth allowed under the County's General Plan. The analysis found that there would be no cumulatively considerable impacts with respect to groundwater in the 962-acre watershed area. Groundwater impacts discussed in Impact HYD-2 would also be primarily cumulative impacts and would not be cumulatively considerable.

Mitigation

No mitigation measures are required.

3.7.4 References

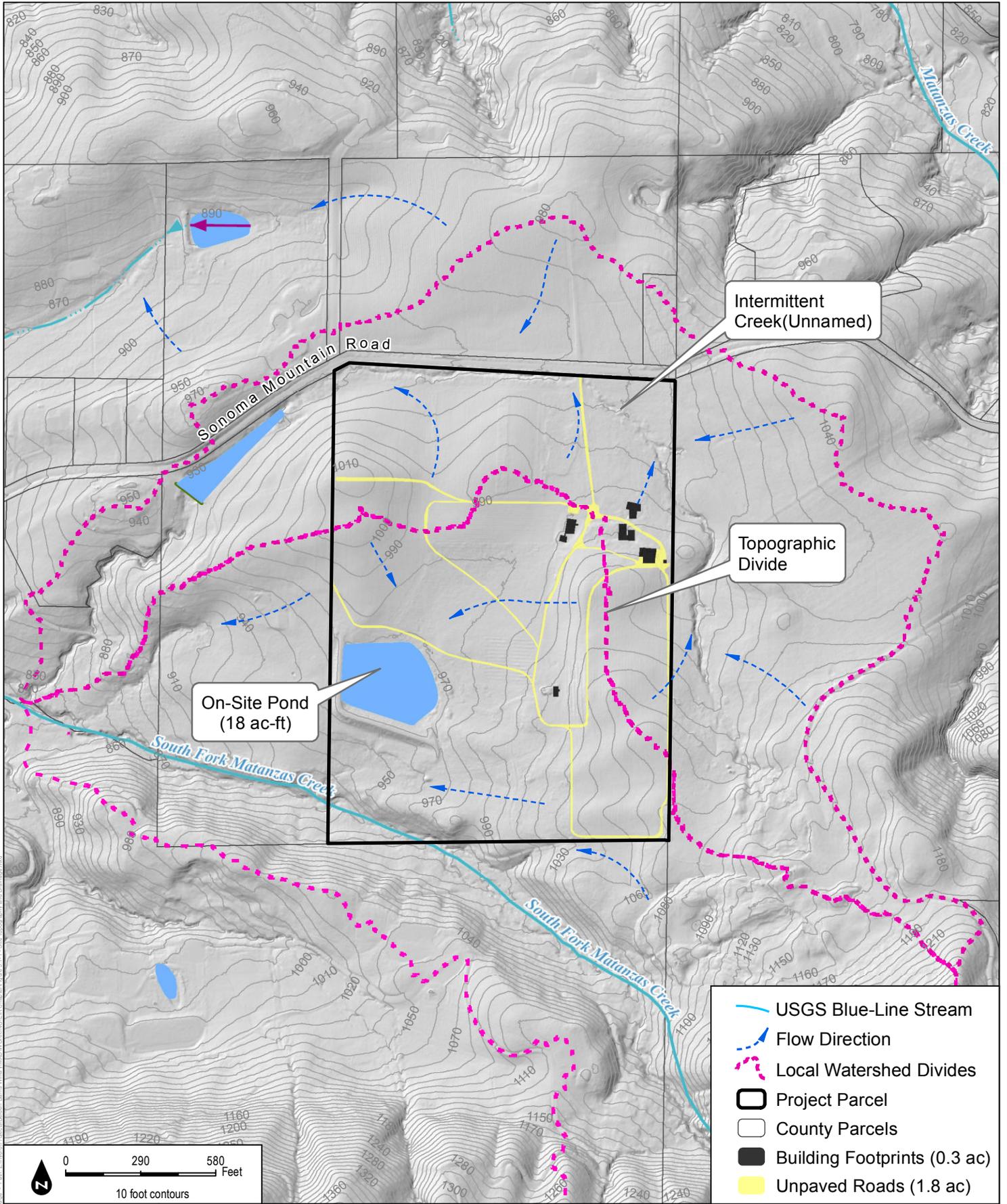
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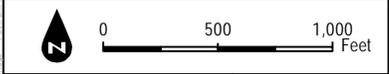
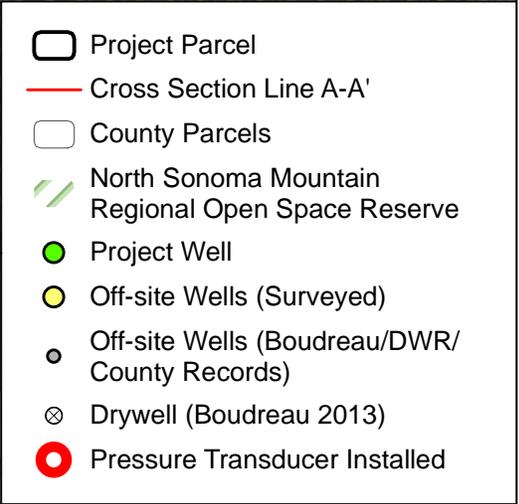
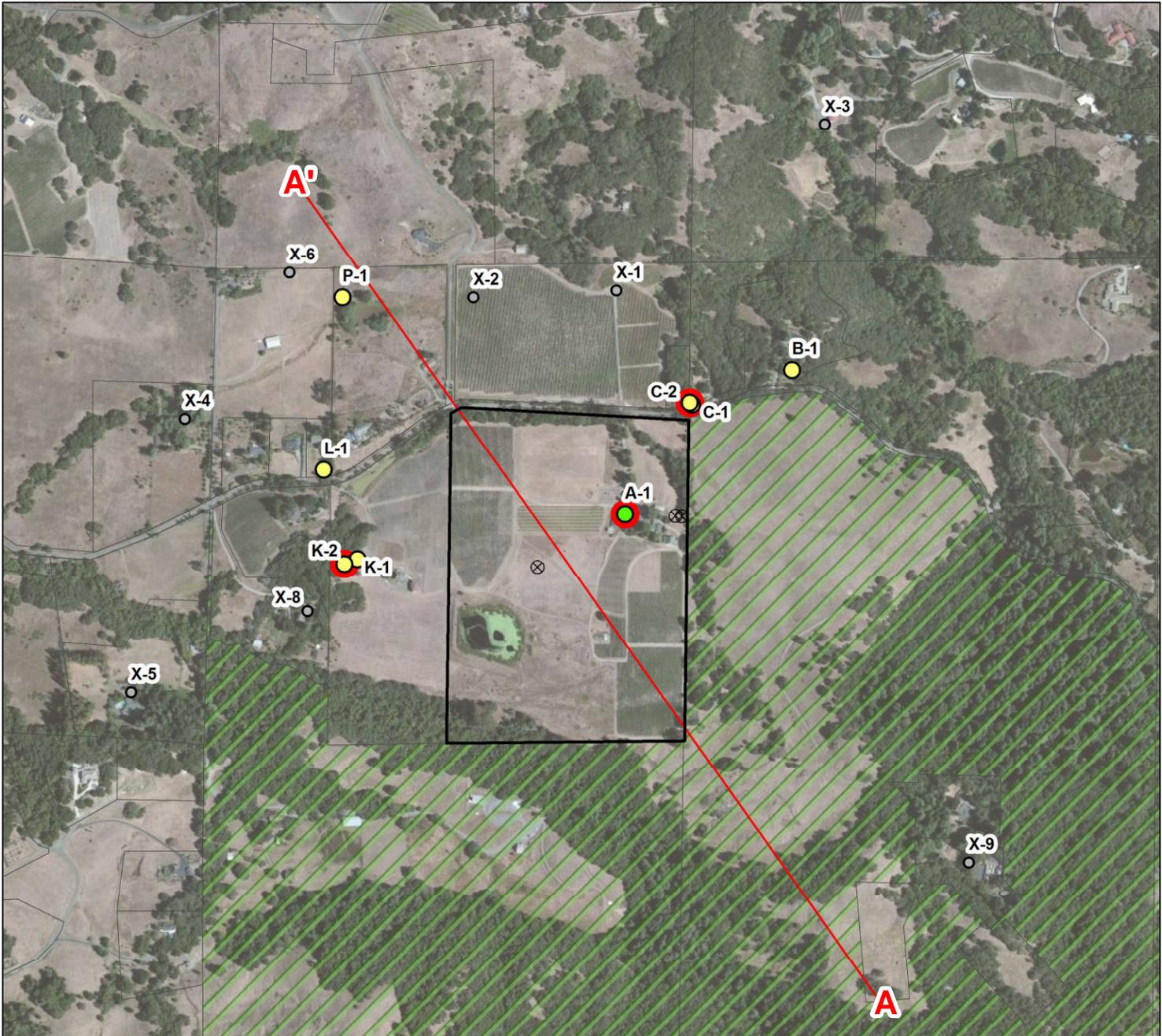
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SOURCE: UNM and NASA 2013, USGS 2015

FIGURE 3.7-1
Site Topography and Drainage

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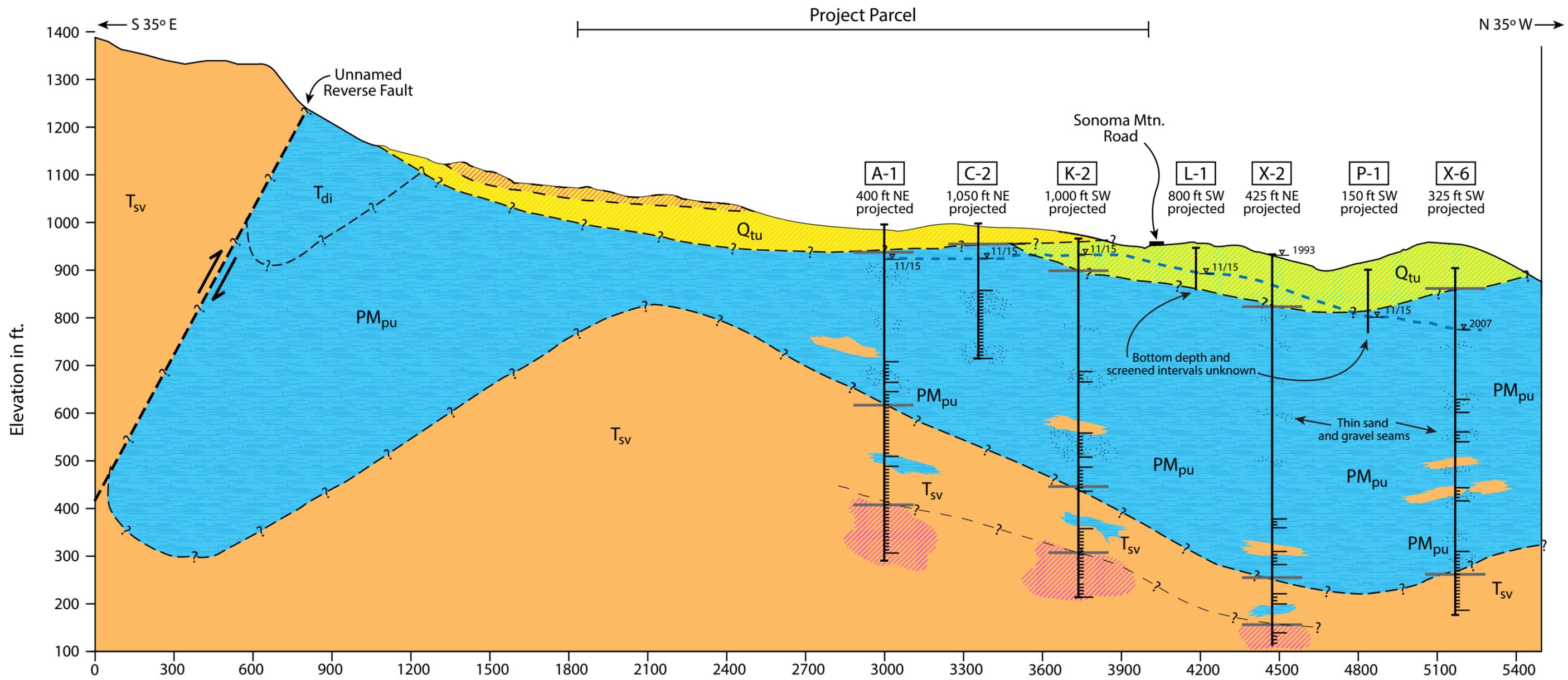
SOURCE: Dudek Site Visits 11/4/15 and 11/13/15; DWR Well Logs; Boudreau 2013.

FIGURE 3.7-2
On-Site and Off-Site Wells



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Distance in ft.
 (*Note: Vertical is 2x horizontal distance)

Explanation

<ul style="list-style-type: none"> Old Landside Deposits (Qols)? Alluvial fan (Qf)? Glen Ellen Formation (QTge)? Petaluma Formation (PMpu)? 		<p>QT_u = Undifferentiated Quaternary & Late Tertiary Deposits</p> <p>? = Queried/Uncertain</p>	<ul style="list-style-type: none"> Blue clay Interbedded ash/pumice 		<p>Diatomite (T_{di})</p> <p>PM_{pu}</p> <p>} Upper Petaluma Fm</p>	<ul style="list-style-type: none"> Volcanic rocks, ash/pumice Fractured rock, basalt 		<p>T_{sv} = Sonoma Volcanics</p>	<ul style="list-style-type: none"> Top of Casing 11/15 Groundwater Level & Date Geologic Contact Perforated Interval Bottom of Casing
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3.8 NOISE

This section describes the existing noise setting of the project site, identifies associated regulatory requirements, evaluates potential project level and cumulative impacts, and identifies mitigation measures related to implementation of the proposed project.

The analysis and findings described in this section are based on the Noise Assessment Technical Report prepared by Dudek in 2016 and provided in Appendix G of this environmental impact report (EIR).

3.8.1 Environmental Setting

This section describes the existing noise conditions in the project area and also identifies the resources that could be affected by the proposed project.

3.8.1.1 Noise Background Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called “A” weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the “noise level” and is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear. Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual’s noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually

changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided below.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day–night sound level (L_{dn}), and the CNEL. Below are brief definitions of these measurements and other terminology used in this report.

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the day–night average sound levels (L_{dn}) and community noise equivalent level (CNEL) scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Percentile-exceeded sound level** (L_{xx}) is the sound level exceeded x percent of a specific time period. L_{10} is the sound level exceeded 10% of the time.
- **Day–night average sound level** (L_{dn}). The L_{dn} is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours. Resulting values from application of L_{dn} versus CNEL rarely differ by more than 1 dB (see definition below), and therefore these two methods of describing average noise levels are often considered interchangeable.

- **Community noise equivalent level (CNEL)** The CNEL is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a “hard” or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive site is characteristic of unpaved loose soil or vegetated ground. For this analysis, attenuation rates corresponding to “hard” sites were conservatively used.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls or slopes associated with elevation differences typically reduce noise levels by 5 to 10 dBA (U.S. DOT 1980). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to 30 dBA with open and closed windows, respectively, as shown in Table 3.8-1.

Table 3.8-1
Outside-to-Inside Noise Attenuation (dBA)

Building Type	Open Windows	Closed Windows ¹
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

Source: Transportation Research Board, National Research Council, 2000.

Note:

¹ As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA. This typically requires inclusion of a forced-ventilation system, central air conditioning and self-closing doors in order to ensure that doors and windows can be kept shut.

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex. However, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be perceived by building occupants as perceptible vibration. It is also common for groundborne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

When evaluating human response, groundborne vibration is usually expressed in terms of root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. As for sound, it is common to express vibration amplitudes in terms of decibels defined as:

$$L_v = 20 \log \left(\frac{v_{rms}}{v_{ref}} \right)$$

where v_{rms} is the RMS vibration velocity amplitude in inches/second and v_{ref} is the decibel reference of 1×10^{-6} inches/second.

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2006).

3.8.1.2 Existing Noise Conditions

The project vicinity is rural in nature, and the primary noise source is vehicular traffic on local roadways. No major industrial uses, airports, or large institutions are located in the project vicinity. The nearest freeway is U.S. 101, located approximately 5.7 miles to the west, and the nearest public airport is the Petaluma Municipal Airport, located approximately 7.5 miles to the south. In order to characterize noise levels associated with the existing facility, local traffic noise and the other noise sources in the project area, a series of long-term and short-term noise measurements were conducted.

Four long-term measurements (ranging from 16 to 110 hours in duration) were conducted on site using three SoftdB Piccolo and one Larson Davis LD-700 digital integrating sound level meters (SLMs). These devices are classified as Type II (general purpose) SLMs by the American National Standards Institute (ANSI). The calibration of the SLMs was verified in the field prior to and following the measurements using a Larson Davis Model CAL200 acoustical calibrator; the SLM microphones were adjusted to a height of approximately 5 feet above local ground; and the microphones were covered with a foam windscreen designed for this purpose during the measurements, in accordance with ANSI standards for community noise measurements.

The long-term noise measurement data is summarized in Table 3.8-2, and the noise measurement locations are shown in Figure 3.8-1. The reader is referred to Appendix G for data tables with the recorded hourly average noise levels (L_{eq}) at each site throughout the measurement periods, statistical noise levels at two of the four onsite measurement locations, and the calculation of L_{dn} from the recorded hourly average values. As shown in Table 3.8-2, the cumulative hourly average noise levels ranged from approximately 36 dBA L_{eq} near the southern project boundary to 50 dBA L_{eq} at the northern project boundary. The measured 24-hour weighted L_{dn} noise levels ranged from approximately 45 dBA at the western project boundary to 55 dBA L_{dn} at the northern project boundary. Measured noise levels were consistent with rural agricultural/residential land uses. The loudest on-site noise levels were at LT1, which was immediately adjacent to Sonoma Mountain Road. The loudest hourly noise level recorded at LT1 was 59 dBA L_{eq} , whereas at the other three on-site locations the loudest hourly noise levels ranged from 40 to 48 dBA L_{dn} . At LT1, in which the measurement duration encompassed a period from Thursday through Sunday, it is noted that the average weekend noise levels were approximately the same (within 1 to 2 decibels) as the weekday noise levels. Thursday and Friday's measured 24-hour noise levels were 55 and 54 dBA L_{dn} , respectively, while both Saturday and Sunday had measured 24-hour noise levels of 53 dBA L_{dn} . L_{50} noise levels ranged from 37 dBA during nighttime hours (10 PM to 7 AM) to 43 dBA daytime (7 AM to 10 PM).

**Table 3.8-2
Long-Term Noise Measurement Data Summary (dBA)**

Measurement #: Location	Start Date & Time	Stop Date & Time	Cumulative Hourly Average Level (L _{eq})	L _{dn}	Loudest Hour (L _{eq})	Quietest Hour (L _{eq})	L ₅₀	L ₂₅	L ₈	L ₂
LT1: Northern project site boundary	10/7/2015 10:40	10/11/2015 23:40	49.7	54 - 55 Thurs - Fri, 53 Sat & Sun	59.1	37.4	—	—	—	—
LT2: Eastern project site boundary	10/6/2015 9:30	10/7/2015 9:30	41.2	45.8	48.2	37.0	41 Daytime 37 Nighttime	43 Daytime 39 Nighttime	45 Daytime 39 Nighttime	49 Daytime 41 Nighttime
LT3: Near southern project site boundary	10/6/2015 9:00	10/7/2015 0:00	35.5	n/a *	40.0	31.0	—	—	—	—
LT4: Western project site boundary	10/6/2015 9:15	10/7/2015 9:15	40.8	45.1	46.5	36.8	43 Daytime 37 Nighttime	47 Daytime 37 Nighttime	49 Daytime 39 Nighttime	53 Daytime 41 Nighttime

Notes: L_{eq} = equivalent sound level; L_{dn} = day–night average sound level

¹ Not applicable; less than 24 hours of noise measurement data collected.

In addition to the four on-site long-term noise measurements, short-term noise measurements were also conducted at two off-site locations (shown in Figure 3.8-1): a noise measurement (ST1) was conducted adjacent to Sonoma Mountain Road approximately 700 feet west of the project site, and a noise measurement (ST2) was conducted adjacent to Pressley Road, approximately 800 feet south of Sonoma Mountain Road. Both short-term noise measurements were conducted using a Larson Davis LD-820 SLM (ANSI Type I) using ANSI-recommended noise measurement practices as described above. Each of the noise measurements was 30 minutes in duration, and the vehicle traffic was manually counted simultaneously with the measurement, for use in calibration of the traffic noise model. The resulting noise and traffic count data is summarized in Table 3.8-3.

Table 3.8-3
Short-Term Noise Measurement Data Summary (dBA)

Site	Description	Measurement Date & Time	Traffic Counts	L _{eq}	L _{max}	L _{min}
ST1	5400 Sonoma Mountain Road: west of project site, adjacent to residences north of Sonoma Mountain Road	10/6/2015 11:15–11:45	21 autos, 1 medium truck	59	82	26
ST2	4000 Pressley Road; southwest of project site, adjacent to residences east of Pressley Road, north of Sonoma Mountain Road	10/6/2015 12:09–12:39	28 autos	57	76	29

Note: L_{eq} = equivalent continuous sound level (time-average sound level); L_{max} = maximum noise level; L_{min} = minimum noise level

As shown in Table 3.8-3, the noise measurements (conducted within 8–20 feet of the edge of shoulder) ranged from 57 to 59 dBA L_{eq}.

Transportation Noise

Roadways

Vehicular traffic along vicinity roadways is typically a primary contributor to the overall noise environment in any urban (or, for the most part, rural) neighborhood. Using current traffic data and employing the Federal Highway Administration’s Traffic Noise Model (TNM version 2.5, FHWA 2004), Dudek modeled the traffic noise levels associated with noise-sensitive receivers¹ located near the project site and adjacent to segments of Sonoma Mountain Road and Pressley Road that will be impacted by project-related trips. In order to estimate the 24-hour weighted average level (L_{dn}), 10% of the volumes were assigned to the respective roadways. Both

¹ Noise-sensitive receivers are land uses associated with outdoor and/or indoor activities that may be subject to significant interference or stress from noise sources not within their control (i.e., from nearby transportation noise sources or adjacent on-site noise sources). They generally include residential land uses, hospitals, schools and libraries. The noise-sensitive receivers for this project (consisting entirely of residential land uses) were identified initially through review of aerial photographs of the surrounding area, and verified during field noise measurements.

weekday and weekend traffic volumes were modeled. Table 3.8-4 presents the results of the noise modeling for existing traffic on selected area roadways.

Table 3.8-4
Existing Traffic Noise Levels (dBA L_{dn})

Receiver	Land Use/Roadway	Volume ¹ (weekday)	Volume ¹ (weekend)	Posted Speed (mph)	Existing Weekday L _{dn}	Existing Weekend L _{dn}
R1	Project site/Sonoma Mountain Road north of project site	351	276	40	30	30
R2	Residence and farm/Sonoma Mountain Road west of project site	351	276	40	28	28
R3	Residence and farm/Sonoma Mountain Road west of project site	351	276	40	49	48
R4	Residence/Sonoma Mountain Road west of project site	351	276	40	43	43
R5	Residence/Sonoma Mountain Road east of project site	439	385	40	45	44
R6	Residence/Sonoma Mountain Road east of project site	439	385	40	46	45
R7	Residence/Sonoma Mountain Road west of project site	351	276	40	46	45
R8	Residence/Sonoma Mountain Road (north of Pressley Road) west of project site	922	880	40	53	53
R9	Pressley Road south of Sonoma Mountain Road	667	550	30	45	45

Notes: mph = miles per hour; L_{dn} = day-night average sound level

¹ See Appendix H of this EIR (TJKM. *Traffic Impact Analysis for the Belden Barns Winery*. March 24, 2016).

As shown in Table 3.8-4, modeled existing traffic noise levels are relatively low, ranging from approximately 28 dBA L_{dn} (at receiver R2) to 53 dBA L_{dn} (at R8) during both the weekdays and weekends.

Non-Transportation Noise

The ambient noise levels recorded at the eastern, southern, and western property lines² from existing operations are well within the allowable community noise exposure levels for noise-sensitive land uses, including the adjacent residential uses. The measurements were conducted during typical operations (i.e., there was not an event occurring during the measurements), and therefore the measured sound levels account for typical existing daily activities and standard mechanical equipment operation.

3.8.2 Regulatory Framework

Federal

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration (FAA), Code of Federal Regulations (CFR) Title 14, Part 150 prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. The FAA has determined that interior sound levels up to 45 dBA L_{dn} (or CNEL) are acceptable within residential buildings. The FAA also considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn} (or CNEL).

Federal Highway Administration Standards

CFR Title 23, Part 772 sets procedures for the abatement of highway traffic noise and construction noise. Title 23 is implemented by the U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA). The purpose of this regulation is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways. All highway projects which are developed in conformance with this regulation shall be deemed to be in conformance with the DOT-FHWA Noise Standards. Title 23 establishes a 67 dBA $L_{eq(th)}$ standard applicable to federal highway projects for evaluating impacts to land uses including residences, recreational uses, hotels, hospitals, and libraries (23 CFR Chapter 1, Part 772, Section 772.19).

² At the northern property boundary, the noise levels (as represented by LT1) were dominated by noise from Sonoma Mountain Road. LT1, therefore, is not representative of noise levels from the existing on-site facility.

Federal Transit Administration and Federal Railroad Administration Standards

Although Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA *Transit Noise and Vibration Impact Assessment Manual* (May 2006; FTA 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inch/second perturbation projection vector (PPV).

State

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declare that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The act also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards (CCR Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multi-family residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multi-family residential building or structure is proposed to be located in an area with CNEL (or L_{dn}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dBA (CCR Title 24 Noise Standards, Chap. 2-35). The County of Sonoma applies the interior noise criterion of CNEL 45 dBA for single-family residences, in addition to multi-family residential structures.

Local

Sonoma County General Plan, Noise Element

The Noise Element of the *Sonoma County General Plan 2020* (County of Sonoma 2008) provides background information pertaining to Wineries and Special Events, which are germane for consideration with regard to the proposed project. This background information is provided below.

Wineries

Noise produced at wineries can be of concern during the “crush” season, when trucks deliver grapes to the wineries, and forklifts transfer grapes into the wineries. Truck deliveries associated with bulk wine or bottled wine can also be a source of noise complaints from adjacent residential uses. Noise-producing equipment used at wineries includes air compressors, grape presses, exhaust fans, chillers, and bottling plants. Use of this equipment and other related activities may create noise levels above and different from the ambient noise environment. File data indicate that average hourly noise levels from properly muffled vehicles and equipment operating at wineries are typically less than 60 dB at a distance of 300 feet from the source. Nearby residents may complain about the noise from these activities, but given the seasonal nature of winery activities, noise impacts from normal winery operations are usually considered to be less than significant.

Agricultural Promotional Events

Agricultural promotional events, both single and ongoing, include such activities as festivals and concerts, which may include the use of amplified sound systems. Often located at wineries, these activities can produce unacceptable noise levels, especially during evening hours, and the associated traffic problems may heighten public concern about the noise producing activity.

Given the potential conflicts due to noise associated with events, concerts, and other such activities, noise would continue to be considered in the review process for proposals which allow events.

Noise Element Policies

The Noise Element of the *Sonoma County General Plan 2020* establishes policies aimed at protecting noise-sensitive land uses from elevated noise generated by transportation and non-transportation sources. The following policies from the Noise Element are applicable to the proposed project (* denotes Mitigation Policy):

Policy NE-1a Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB L_{dn} , 60 dB CNEL, or the performance standards of Table NE-2.*

Policy NE-1b

Avoid noise sensitive land use development in noise impacted areas unless effective measures are included to reduce noise levels. For noise due to traffic on public roadways, railroads and airports, reduce exterior noise to 60 dB L_{dn} or less in outdoor activity areas and interior noise levels to 45 dB L_{dn} or less with windows and doors closed. Where it is not possible to meet this 60 dB L_{dn} standard using a practical application of the best available noise reduction technology, a maximum level of up to 65 dB L_{dn} may be allowed but interior noise level shall be maintained so as not to exceed 45 dB L_{dn} . For uses such as Single Room Occupancy, Work-Live, Mixed Use Projects, and Caretaker Units, exterior noise levels above 65 dB L_{dn} or the Table NE-2 standards may be considered if the interior standards of 45 dB L_{dn} can be met. For schools, libraries, offices, and other similar uses, the interior noise standard shall be 45 dB L_{eq} in the worst case hour when the building is in use.*

Policy NE-1c

Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

1. If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e., +/- 1.5 dBA) shall be allowed
2. Reduce the applicable standards in Table NE-2 by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as pile drivers and dog barking at kennels
3. Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels
4. For short term noise sources which are permitted to operate no more than six days per year, such as concerts or race events, the allowable noise exposures shown in Table NE-2 may be increased by 5 dB. These events shall be subject to a noise management plan including provisions for maximum noise level limits, noise monitoring, complaint response and allowable hours of operation. The plan shall address potential cumulative noise impacts from all events in the area.

5. Noise levels may be measured at the location of the outdoor activity area of the noise sensitive land use, instead of the exterior property line of the adjacent noise sensitive land use where:
 - a. the property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and
 - b. there is available open land on those noise sensitive lands for noise attenuation.

This exception may not be used on vacant properties which are zoned to allow noise sensitive uses.*

Table 3.8-5
Maximum Allowable Exterior Noise Exposures for Non-transportation Noise Sources
 [Table NE-2 in *Sonoma County General Plan 2020 Noise Element*]

Hourly Noise Metric, dBA ¹	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L50 (30 minutes in any hour)	50	45
L25 (15 minutes in any hour)	55	50
L08 (4 minutes 48 seconds in any hour)	60	55
L02 (72 seconds in any hour)	65	60

Note:

¹ The sound level exceeded n% of the time in any hour. For example, the L50 is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L02 is the sound level exceeded 1 minute in any hour.

Policy NE-1d

Consider requiring an acoustical analysis prior to approval of any discretionary project involving a potentially significant new noise source or a noise sensitive land use in a noise impacted area. The analysis shall:

1. Be the responsibility of the applicant,
2. Be prepared by a qualified acoustical consultant,
3. Include noise measurements adequate to describe local conditions,
4. Include estimated noise levels in terms of L_{dn} and/or the standards of Table NE-2 for existing and projected future (20 years hence) conditions, based on accepted engineering data and practices, with a comparison made to the adopted policies of the Noise Element. Where low frequency noise (ex: blasting) would be generated, include assessment of noise levels and vibration using

the most appropriate measuring technique to adequately characterize the impact,

5. Recommend measures to achieve compliance with this Element. Where the noise source consists of intermittent single events, address the effects of maximum noise levels on sleep disturbance,
6. Include estimates of noise exposure after these measures have been implemented, and
7. Be reviewed by the Permit and Resource Management Department and found to be in compliance with PRMD guidelines for the preparation of acoustical analyses.*

Policy NE-1f

Require development projects that do not include or affect residential uses or other noise sensitive uses to include noise mitigation measures where necessary to maintain noise levels compatible with activities planned for the project site and vicinity.

Policy NE-1m

Consider requiring the monitoring of noise levels for discretionary projects to determine if noise levels are in compliance with required standards. The cost of monitoring shall be the responsibility of the applicant.*

3.8.3 Impacts and Mitigation Measures

3.8.3.1 Significance Criteria

The significance criteria for this noise impact analysis are adapted from the California Environmental Quality Act Guidelines, Appendix G. Based on the guidelines, noise impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Expose persons to or generate excessive groundborne vibration or groundborne noise levels.
3. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5. Expose people residing or working in the project area to excessive noise levels (for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport).
6. Expose people residing or working in the project area to excessive noise levels (for a project within the vicinity of a private airstrip).

Criteria Not Applicable to Proposed Project

Due to the location and characteristics of the proposed project, certain significance criteria are not applicable to the proposed project and therefore, are not considered potential impacts. These criteria are addressed briefly below but are not discussed further in this document.

- **Expose people residing or working in the project area to excessive noise levels (for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport).** The project is not located within an airport land use plan, and the nearest public airport is the Petaluma Municipal Airport, located approximately 7.5 miles to the south.
- **Expose people residing or working in the project area to excessive noise levels (for a project within the vicinity of a private airstrip).** The project site is not within the vicinity of a private airstrip.

3.8.3.2 Impact Discussion

Impact NOI-1: The project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. This would be a less-than-significant impact.

Operational Noise

Roadway Noise

The primary noise-related effect that most projects produce is a potential for on-site and off-site increases in traffic, which is the main source of noise in most urban and rural areas. Acoustical calculations were performed for existing traffic levels (presented in Section 3.8.1.2) as traffic is often a major contributor to the ambient or community noise level, and it is helpful therefore to quantify existing traffic related noise levels.

The proposed project would generate traffic along adjacent roadways, including Sonoma Mountain Road and Pressley Road. Potential noise effects from vehicular traffic were assessed using FHWA's Traffic Noise Model, version 2.5. Consistent with the Traffic Impact Analysis (Appendix H of this EIR), information used in the model included the Existing (i.e., baseline

conditions), Existing plus Project, Cumulative, and Cumulative plus Project traffic volumes and speeds. Two scenarios were modeled: Scenario 1: Harvest Season, and Scenario 2: Agricultural Promotional Events. Noise levels were modeled at representative on-site and off-site noise-sensitive receivers for both weekday and weekend scenarios. The receivers (R1 through R10), which represent noise-sensitive receivers with the most potential to be impacted by project-related traffic noise, are shown in Figure 3.8-1.

The information provided from this modeling was compared to the noise impact significance criteria in Policy NE-1b (i.e., a 60 dBA L_{dn} noise standard for noise-sensitive land uses) to assess whether project traffic noise would cause a significant impact and, if so, where. The results of the comparisons are presented in Table 3.8-6 for the weekday scenarios, and Table 3.8-7 for the weekend scenarios.

As shown in Table 3.8-6, existing with project and cumulative with project weekday traffic noise levels would range from 29 dBA L_{dn} at receiver R2 to 54 dBA L_{dn} at R8; modeled cumulative with project noise levels would range from 33 dBA L_{dn} at R1 to 55 dBA L_{dn} at R8. The proposed project would increase the weekday noise levels by 1 dBA or less (rounded to whole numbers) along the study area roadways.

As shown in Table 3.8-7, modeled existing with project weekend traffic noise levels would range from 28 dBA L_{dn} at receiver R2 to 53 dBA L_{dn} at R8; modeled cumulative with project noise levels would range from 34 dBA L_{dn} at receivers R1 and R2 to 55 dBA L_{dn} at R8. The proposed project would increase the weekend noise levels by up to 4 dBA³ or less (rounded to whole numbers) along the study area roadways. Noise levels with the project would remain below the County's noise standard of 60 dBA L_{dn} at all of the representative receivers under all of the scenarios analyzed. Therefore, the proposed project would not cause an exceedance of applicable noise standards at any of the off-site noise-sensitive receptors. Traffic noise impacts would be less than significant.

³ At receivers R2, R4, and R7 (representing residences along Sonoma Mountain Road west of the project site) the cumulative weekend L_{dn} is predicted to increase by up to 4 dB under Scenario 2 (Agricultural Promotional Events).

**Table 3.8-6
Project-Related Traffic Noise – Weekdays (dBA L_{dn})**

Receiver	Land Use/Roadway	Existing	Existing + Project Scenario 1	Existing + Project Scenario 2	Noise Increase (dB)	Cumulative	Cumulative + Project Scenario 1	Cumulative + Project Scenario 2	Noise Increase (dB)
R1	Project site/Sonoma Mountain Road north of project site	30	31	n/a	1	34	34	n/a	0
R2	Residence and farm/Sonoma Mountain Road west of project site	28	29	n/a	1	34	34	n/a	0
R3	Residence and farm/Sonoma Mountain Road west of project site	49	50	n/a	1	52	53	n/a	1
R4	Residence/Sonoma Mountain Road west of project site	43	44	n/a	1	47	48	n/a	1
R5	Residence/Sonoma Mountain Road east of project site	45	45	n/a	0	48	48	n/a	0
R6	Residence/Sonoma Mountain Road east of project site	46	46	n/a	0	49	49	n/a	0
R7	Residence/Sonoma Mountain Road west of project site	46	47	n/a	1	50	51	n/a	1
R8	Residence/Sonoma Mountain Road (north of Pressley Road) west of project site	53	54	n/a	1	56	56	n/a	0
R9	Residence/Pressley Road south of Sonoma Mountain Road	45	45	n/a	0	47	47	n/a	0
R10	Residence/Sonoma Mountain Road (West of Sonoma Ridge Road) northwest of project site	38	38	n/a	0	42	42	n/a	0

Note: dB= decibels; n/a – not applicable; Scenario 2 (Agricultural Promotional Events) would not occur on weekdays

**Table 3.8-7
Project-Related Traffic Noise – Weekends (dBA L_{dn})**

Receiver	Land Use/Roadway	Existing	Existing + Project Scenario 1	Existing + Project Scenario 2	Noise Increase (dB)	Cumulative	Cumulative + Project Scenario 1	Cumulative + Project Scenario 2	Noise Increase (dB)
R1	Project site/Sonoma Mountain Road north of project site	30	30	30	0	33	34	34	1
R2	Residence and farm/Sonoma Mountain Road west of project site	28	28	29	1	30	34	34	4
R3	Residence and farm/Sonoma Mountain Road west of project site	48	49	49	1	50	52	53	3
R4	Residence/Sonoma Mountain Road west of project site	43	43	44	1	44	47	48	4
R5	Residence/Sonoma Mountain Road east of project site	44	45	45	1	47	48	48	1
R6	Residence/Sonoma Mountain Road east of project site	45	45	46	1	49	49	49	0
R7	Residence/Sonoma Mountain Road west of project site	45	46	46	1	47	50	51	4
R8	Residence/Sonoma Mountain Road (north of Pressley Road) west of project site	53	53	53	0	55	55	55	0
R9	Residence/Pressley Road south of Sonoma Mountain Road	45	45	45	0	46	47	47	1
R10	Residence / Sonoma Mountain Road (West of Sonoma Ridge Road) northwest of project site	37	38	38	1	39	41	42	3

On-Site Operations Noise

The proposed project would also result in changes to existing noise levels on the project site by adding new stationary sources of noise and by improving or adding new activity areas (i.e., the tasting room) such that outdoor area use may increase. These sources may affect noise-sensitive vicinity land uses off the project site. The following analysis evaluates noise from exterior mechanical equipment retrofits, and also noise from agricultural promotional event activities.

Mechanical Equipment Noise and On-Site Vehicle Noise

Implementation of the proposed project would result in the addition of a large commercial chiller to the project site, a Variable Refrigerate Volume conditioning unit, an electrical transformer, and water pumps. This equipment would be located on the eastern side of the winery building and surrounded by a 5 foot high solid wall. The winery building would be located approximately 600 feet from the nearest residential property line and approximately 750 feet from the nearest residence (both located to the north/northeast). The next-nearest residences are located to the west and northwest of the project site. The winery building would be located approximately 1,450 feet away from the residential property lines and approximately 1,600 feet from the residences. Based on product noise emission levels provided by the applicant for the loudest piece of equipment, the chiller would result in a sound power level⁴ (L_w) of 87 dBA. The following equation for a sound source in a free field with a reflecting plane⁵ (Diehl 1973) was used to estimate the noise levels from the chiller equipment at the nearest noise-sensitive land uses:

$$L_p = L_{50} = L_w - 20 * \text{Log}(R) + 2.5$$

Where:

L_p is sound pressure level in A-weighted decibels (dBA)

L_{50} is the sound level exceeded 50 percent or more of the time⁶ in dBA

L_w is sound power level, in dBA

R is distance from source to receiver, in feet

The estimated noise levels from the mechanical equipment are summarized in Table 3.8-8. The equipment would be surrounded on three sides by a 5-foot-high solid wall and on the fourth side by winery building, and thus the noise levels from the mechanical equipment would be reduced

⁴ Sound power is the rate at which sound energy is emitted, reflected, transmitted or received, per unit time. The SI unit of sound power is the watt (W). Because it is the power of the sound force on a surface of the medium of propagation of the sound wave, there is no reference distance associated with this metric.

⁵ Assumes a perfectly reflective ground surface, which is not the case for this project but is used as a conservative measure in order to account for so-called “amphitheater effects” associated with the project’s hillside setting.

⁶ Because the chiller noise would be operating on a continuous, or steady-state basis, the sound pressure level would be equivalent to the L_{50} . The chiller noise would be mechanical but not tonal in nature. No reduction of the County noise standard is applicable.

by a minimum of 5 dB by virtue of the direct line-of-sight being broken. The results in Table 3.8-8 reflect this additional noise reduction. As shown, the estimated noise levels would be well below the County of Sonoma noise standards for daytime and nighttime non-transportation noise. Noise levels would range from approximately 20 to 29 dBA L_{50} without accounting for the shielding of the walls and the winery building. Therefore, noise levels from the on-site mechanical equipment would be less than significant.

Other noise sources would include periodic on-site vehicle noise from truck deliveries and the like; however, these would be of a relatively small number; per the project's Traffic Impact Analysis, net-total non-harvest truck trips during non-harvest season would average out to 0.3 truck trips per day (i.e., less than 1 truck trip every 3 days), and 3.14 truck trips per day during harvest season. Additionally, occasional noise from backup alarms on forklifts and trucks would occur; however, these noises would be shielded at the nearest residences to the north by the winery structure. Because of this and the infrequent nature of these sources, these noise levels would be less than significant.

**Table 3.8-8
Estimated Mechanical Equipment Noise Levels**

Receiver Location	Distance (feet)	L_{50} (dBA)	Applicable Noise Standard (L_{50})		Noise Standard Exceeded?
Nearest Neighbors' Property Line (N-NE)	600	29	50 dBA (7 a.m. to 10 p.m.)	45 dBA (10 p.m. to 7 a.m.)	No
Nearest Neighbors (N-NE)	750	27	50 dBA (7 a.m. to 10 p.m.)	45 dBA (10 p.m. to 7 a.m.)	No
Next-Nearest Neighbors' Property Line (W & NW)	1,450	21	50 dBA (7 a.m. to 10 p.m.)	45 dBA (10 p.m. to 7 a.m.)	No
Next-Nearest Neighbors (W & NW)	1,600	20	50 dBA (7 a.m. to 10 p.m.)	45 dBA (10 p.m. to 7 a.m.)	No

Event Noise

During the eight proposed agricultural promotional events throughout the year, the number of participants would range from a maximum of 60 to 200. The events would feature food, wine, and other products produced on the site or in the local area and would be held in the indoor and outdoor portions of the farm building complex area. Events would end by 9:30 p.m. with clean up being completed by 10:00 p.m. There would be no outdoor amplified music at any event. Event parking would be provided on site with parking guides present to facilitate parking when event participants arrive. Based upon reference sound levels from the literature for a raised male voice (65 dBA at 3.28 feet (Harris 1979)) and a string quartet (sound power level of 95 dBA (Kahle 1995)), the resultant noise levels at nearby residential land uses were estimated, as shown in Table 3.8-9. Note that this is a very conservative estimate, as it is highly unlikely that the

raised male voices at an event as proposed for this project would be sustained for 30 minutes or more during any 1-hour period. Additionally, a typical event would have some combination of male and female guests, and the noise levels would be lower for this reason as well. As shown in Table 3.8-9, the conservative estimate for noise levels for the maximum-attendance scenario (200 guests) would range from 38 dBA L₅₀ at the third-nearest residences, located approximately 1,400 feet to the northwest, to 45 dBA L₅₀ at the nearest residential property line, 600 feet to the north/northeast. For a scenario with 60 guests, the estimates range from approximately 43 L₅₀ to 36 dBA L₅₀. These noise levels would be below the applicable County of Sonoma noise standard for activities taking place between the hours of 7:00 a.m. and 10:00 p.m. of 50 dBA L₅₀. Furthermore, these noise levels, although they may be audible at nearby residences in light of the relatively low ambient noise levels, are unlikely to be of a level typically considered intrusive or disturbing. The noise from on-site events would be less than significant.

**Table 3.8-9
On-Site Event Noise**

Assuming Max. 200 people all male raised voice					
<i>Receiver Description</i>	<i>Receiver Distance (feet)</i>	<i>Raised Male Voices (dBA L₅₀)</i>	<i>String Quartet (dBA L₅₀)</i>	<i>Combined (dBA L₅₀)</i>	<i>Applicable Standard (45 dBA L₅₀¹) Exceeded?</i>
Nearest Residences (R5) Property Line (North/Northeast)	600	42.8	41.9	45	No
Nearest Residences (R5) (North/Northeast)	780	40.5	39.7	43	No
2nd-Nearest Residences (R2) Property Line (West)	1,070	37.7	36.9	40	No
2nd-Nearest Residences (R2) (West)	1,325	35.9	35.1	38	No
3rd-Nearest Residences (R10) Property Line (Northwest)	1,230	36.5	35.7	39	No
3rd-Nearest Residences (R10) (Northwest)	1,400	35.4	34.6	38	No
Assuming Max. 60 people all male raised voice					
<i>Receiver Description</i>	<i>Receiver Distance (feet)</i>	<i>Raised Male Voices (dBA L₅₀)</i>	<i>String Quartet (dBA L₅₀)</i>	<i>Combined (dBA L₅₀)</i>	<i>Applicable Standard (45 dBA L₅₀⁸) Exceeded?</i>
Nearest Residences (R5) Property Line (North/Northeast)	600	37.5	41.9	43	No
Nearest Residences (R5) (North/Northeast)	780	35.3	39.7	41	No
2nd-Nearest Residences (R2) Property Line (West)	1,070	32.5	36.9	38	No
2nd-Nearest Residences (R2) (West)	1,325	30.7	35.1	36	No

**Table 3.8-9
On-Site Event Noise**

Assuming Max. 60 people all male raised voice					
<i>Receiver Description</i>	<i>Receiver Description</i>	<i>Receiver Description</i>	<i>Receiver Description</i>	<i>Receiver Description</i>	<i>Receiver Description</i>
3rd-Nearest Residences (R10) Property Line (Northwest)	1,230	31.3	35.7	37	No
3rd-Nearest Residences (R10) (Northwest)	1,400	30.2	34.6	36	No

Note: ¹ Daytime (7 AM to 10 PM) noise standard reduced 5 dB to account for predominant speech and music sounds.

Parking Lot Activity

Noise sources from parking lots include car alarms, door slams, radios, and tire squeals. These sources typically range from about 30 to 66 dBA at a distance of 100 feet (30 to 63 dBA not including lot sweeper noise, which is not applicable for this project) (Gordon Bricken & Associates 1996), and are generally short-term and intermittent.

Using the instantaneous parking lot noises of 30 to 63 dBA, composite L₅₀ and L₀₂ noise levels were calculated using estimated durations and quantities for each of the parking lot noise sources; the L₅₀ noise level is anticipated to be 59 dBA and the L₀₂ noise level is anticipated to be 63 dBA at a distance of 100 feet. As shown in Table 3.8-10, when propagated out to the nearest residential properties, the L₀₂ noise levels would range from approximately 44 to 47 dBA L₀₂. As shown in Table 3.8-11, when combined with the crowd and music noise, the resultant L₅₀ noise levels would range from approximately 42 dBA L₅₀ to 47 dBA L₅₀. The combined noise levels would not exceed the County's applicable noise standard. Therefore, noise generated from parking lot activity would be less than significant.

**Table 3.8-10
Parking Lot Noise (dBA L02)**

Receiver Description	Receiver Distance to Parking Lot (feet)	Parking Lot Noise	Applicable Standard (65 dBA L₀₂) Exceeded?
Nearest Residences (R2) Property Line (West)	600	47	No
Nearest Residences (R2) (West)	780	45	No
2nd-Nearest Residences (R5) Property Line (East/Northeast)	650	47	No
2nd-Nearest Residences (R5) (East/Northeast)	850	44	No
3rd-Nearest Residences (R10) Property Line (Northwest)	700	46	No
3rd-Nearest Residences (R10) (Northwest)	900	44	No

**Table 3.8-11
Parking Lot Noise**

Receiver Description	Receiver Distance to Parking Lot (feet)	Parking Lot Noise	Crowd and Music Noise	Combined (dBA L ₅₀)	Applicable Standard (50 dBA L ₅₀) Exceeded?
Nearest Residences (R2) Property Line (West)	600	43.5	40.4	45	No
Nearest Residences (R2) (West)	780	41.3	38.5	43	No
2nd-Nearest Residences (R5) Property Line (East/Northeast)	650	42.8	45.4	47	No
2nd-Nearest Residences (R5) (East/Northeast)	850	40.5	43.1	45	No
3rd-Nearest Residences (R10) Property Line (Northwest)	700	42.2	39.1	44	No
3rd-Nearest Residences (R10) (Northwest)	900	40.0	38.0	42	No

Tasting Room Visitors Noise

During non-event days, up to 60 by-appointment-only visitors per day during the harvest season, and approximately 42 by-appointment-only visitors per day in the non-harvest season, are anticipated for tasting wine and for purchase of wine, cheese, etc., based upon the Traffic Impact Analysis. Because there would be substantially more visitors during events, on-site noise from daily tasting room visitors and associated parking lot noise would be at or below the levels described above for Events and Parking Lot Noise.

Construction Noise

Temporary, non-operational noise from construction is addressed below in Impact NOI-4. The County does not have a noise ordinance, and Table NE-2 in the County's Noise Element in the *Sonoma County General Plan 2020* applies to uses and not temporary non-operational noise. As presented in Table 3.8-14, below, the highest noise levels are predicted to occur during the 4 weeks of demolition, when noise levels from construction activities would be approximately 62 dBA L_{eq} at the nearest existing residences, approximately 780 feet away. These are relatively low levels for construction noise because of the distance to the nearest noise-sensitive land uses, and they are not prohibited in the *Sonoma County General Plan 2020*. Nonetheless, as discussed below under Impact NOI-4, mitigation is proposed to reduce the intensity of construction noise impacts.

Mitigation

No mitigation is required.

Impact NOI-2: The project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. This would be a less-than-significant impact.

Impacts related to excessive groundborne vibration would be significant if the project results in the exposure of persons to or generation of excessive groundborne vibration equal to or in excess of 0.2 inches/second PPV. Construction activities within 200 feet and pile driving within 600 feet would be potentially disruptive to vibration-sensitive operations (Caltrans 2002).

The main concern associated with groundborne vibration is annoyance; however, in extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. Some common sources of groundborne vibration are trains, as well as construction activities such as blasting, pile-driving, and heavy earth-moving equipment. The primary source of groundborne vibration occurring as part of this project is construction activity; no major vibration-generating sources would be introduced as part of project operation.

According to Caltrans, the highest measured vibration level during highway construction was 2.88 inches/second PPV at 10 feet from a pavement breaker. Other typical construction activities and equipment, such as D-8 and D-9 Caterpillars, earthmovers, and trucks have not exceeded 0.10 inches/second PPV at 10 feet. Vibration sensitive instruments and operations may require special consideration during construction. Vibration criteria for sensitive equipment and operations are not defined and are often case-specific. As a guide, major construction activity within 200 feet and pile driving within 600 feet may be potentially disruptive to sensitive operations (Caltrans 2002). No pile driving is anticipated to be necessary for project development.

The demolition and construction activities on the project site would have virtually no potential to expose vicinity off-site residences to groundborne vibration, because construction activities would take place well beyond 200 feet away from off-site residences. In addition, the construction activity would not include blasting or pile driving, and would, therefore, result in a less-than-significant impact from groundborne vibration.

Mitigation

No mitigation is required.

Impact NOI-3: The project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. This would be a less-than-significant impact.

Some guidance regarding the determination of a substantial permanent increase in ambient noise levels in the project vicinity above existing levels is provided by the 1992 findings of the Federal

Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. Annoyance is a qualitative measure of the adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment.

The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of L_{dn} . The changes in noise exposure that are shown in Table 3.8-12 are expected to result in equal changes in annoyance at sensitive land uses. Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis to define a substantial increase in community noise levels related to all transportation noise sources and permanent non-transportation noise sources.

Table 3.8-12
Measures of Substantial Increase for Community Noise Sources

Ambient Noise Level Without Project (L_{dn})	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels by:
<60 dB	+ 5 dB or more
60-65 dB	+ 3 dB or more
>65 dB	+ 2 dB or more

Roadway Noise

As described under Impact NOI-1, the primary noise-related effect that most projects produce is a potential for on-site and off-site increases in traffic, which is the main source of noise in most urban and rural areas.

The information provided from the roadway noise modeling presented under Impact NOI-1 above, was compared to the FICON thresholds for noise increase (i.e., a 5 dBA increase in an ambient noise environment of less than 60 dBA L_{dn} , a 3 dBA noise increase in an ambient noise environment of 60 to 65 dBA L_{dn} , and a 2 dBA increase in an ambient noise environment of more than 65 dBA L_{dn}) to assess whether project traffic noise would cause a significant impact and, if so, where. The results of the comparisons are presented in Table 3.8-6 for the weekday scenarios, and Table 3.8-7 for the weekend scenarios.

As shown in Tables 3.8-6 and 3.8-7 earlier in this section, the maximum noise increase (4 dB) would be less than the threshold for a substantial increase in ambient noise levels. Therefore, the proposed project would not result in significant increase in noise levels in the project vicinity.

On-Site Operations Noise

As described under Impact NOI-1, the proposed project would also result in changes to existing noise levels on the project site by adding new stationary sources of noise and by improving or adding new activity areas (i.e., the tasting room) such that outdoor area use may increase. These sources may affect noise-sensitive vicinity land uses off the project site.

Implementation of the proposed project would result in the addition of large commercial chiller to the project site, a Variable Refrigerate Volume conditioning unit, electrical transformer, and water pumps. This equipment would be located on the eastern side of the production facility, and surrounded by a 5-foot-high solid wall. The estimated noise levels from the mechanical equipment are summarized in Table 3.8-8 (see Impact NOI-1 above). The equipment would be surrounded on three sides by a 5-foot high solid wall and on the fourth side by the production facility, and thus the noise levels shown in Table 3.8-8 would be substantially lower (by a minimum of approximately 5 dB). However, even neglecting the additional noise reduction provided by the building structure and the walls, the estimated noise levels would range from approximately 25 to 34 dBA L₅₀ without accounting for the shielding of the walls and the production facility. These noise levels would not represent a substantial increase in ambient noise levels in the project vicinity. Therefore, noise levels from the on-site mechanical equipment would be less than significant.

During non-event days, up to 60 by-appointment-only visitors per day during the harvest season, and approximately 42 by-appointment-only visitors per day in the non-harvest season, are anticipated for tasting wine and for purchase of wine, cheese, etc., based upon the Traffic Impact Analysis. Assuming up to 34 peak-hour trips during the weekend, the resultant parking lot noise was estimated and compared to ambient existing weekend traffic noise levels. As shown in Table 3.8-13, the Existing plus Project noise levels would result in an estimated increase of 3 dB or less at the nearest noise-sensitive land uses. Therefore, noise levels from on-site daily visitor/parking lot noise would be less than significant.

Table 3.8-13
Estimated Parking Lot Noise - Daily¹ Wine Tasting (dBA L₅₀)

Receiver Description	Receiver Distance to Parking Lot (feet)	Parking Lot Noise	Ambient Noise Level (Traffic Noise ²)	Combined (Ambient plus Project) Noise Levels	Resultant Noise Increase (dB)
Nearest Residences (R5) (Northeast)	650	34	45	45	0
2nd-Nearest Residences (R10) (Northwest)	1350	28	37	37	0
3rd-Nearest Residences (R2) (Southwest)	1400	27	28	31	3

Notes:

¹ Based upon the rate of up to 34 vehicles during the peak-hour (during harvest season, weekend).

² Based upon the TNM traffic noise analysis.

Mitigation

No mitigation is required.

Impact NOI-4: The project would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. This would be a potentially significant impact.

Construction Noise

Construction of the proposed project would generate temporary noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures.

It is anticipated that construction of the proposed project would take approximately 12 to 18 months, depending upon whether rough grading can be started and completed during the dry months. Equipment that would be in operation during construction would include rubber-tired dozers, backhoes, graders, forklifts, compressors, paving equipment, and welders. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3.8-14, Construction Equipment Maximum Noise Levels. Note that the equipment noise levels presented in Table 3.8-14 are maximum noise levels. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of the construction activities during that time.

**Table 3.8-14
Construction Equipment Maximum Noise Levels**

Equipment Type	“Typical” Equipment dBA at 50 feet	“Quiet” Equipment* dBA at 50 feet
Air compressor	81	71
Backhoe	85	80
Concrete pump	82	80
Concrete vibrator	76	70
Crane	83	75
Truck	88	80
Dozer	87	83
Generator	78	71
Loader	84	80
Paver	88	80
Pneumatic tools	85	75

Table 3.8-14
Construction Equipment Maximum Noise Levels

Equipment Type	“Typical” Equipment dBA at 50 feet	“Quiet” Equipment* dBA at 50 feet
Water pump	76	71
Power hand saw	78	70
Shovel	82	80
Trucks	88	83

Source: FTA 2006

Note:

* Estimated levels obtainable by selecting quieter procedures or machines and implementing noise-control features requiring no major redesign or extreme cost.

The maximum noise levels at 50 feet for typical equipment would range up to 88 dB for the type of equipment normally used for this type of construction project, although the hourly noise levels would vary. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance. Project construction would take place at distances ranging from approximately 780 to 1,600 feet from adjacent, existing noise-sensitive uses.

The FHWA Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land uses. Although the model was funded and promulgated by the FHWA, the RCNM is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are also used for other project types. Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis.

Using the FHWA RCNM construction noise model and construction information (types and number of construction equipment by phase), the estimated noise levels from construction were calculated for a representative range of distances, as presented in Table 3.8-15, Construction Noise Model Results Summary. The RCNM inputs and outputs are provided in Appendix G.

**Table 3.8-15
Construction Noise Model Results Summary**

RCNM Results Summary					
Case Description:	L_{eq} (dBA)				
	Residence to the northeast – 780 feet	Residence to the west – 1,300 feet	Residences to the northwest – 1,600 feet	Residences to the northwest and northeast – 850 feet	Residences to the west – 720 feet
Demolition	62	58	56	n/a	n/a
Site Preparation	60	55	53	n/a	n/a
Grading	60	55	53	n/a	n/a
Building Construction	59	55	53	n/a	n/a
Paving	60	56	54	n/a	n/a
Architectural Coatings	51	46	45	n/a	n/a

Note: L_{eq} = equivalent continuous sound level; dBA = A-weighted decibels; n/a = not applicable

Noise would not be constant, and the applicant estimates the following durations for noise generating activities:

- Mobilization and Demolition: 4 weeks
- Rough Grading: 6 weeks
- Building Construction: 59 weeks (13.6 months)
- Finish Grading & Paving: 5 weeks
- Landscaping: 4 weeks

As presented in Table 3.8-15, the highest noise levels are predicted to occur during demolition activities, when noise levels from construction activities would be approximately 62 dBA L_{eq} at the nearest existing residences, approximately 780 feet away. The demolition phase would last 4 weeks. These are relatively low levels for construction noise because of the distance to the nearest noise-sensitive land uses. However, they would be louder than existing ambient noise levels based upon the field noise measurements presented in Section 3.8.1.2, Environmental Setting. Although the noise levels would likely not interfere with speech or other activities, they could result in some annoyance. In the context of the project area, the louder components of temporary, non-operational construction noise would be potentially significant if they occurred outside of 7:00 a.m. to 6:00 p.m., Monday through Friday. Noise impacts during construction would be potentially significant, but would be less than significant with implementation of mitigation measure MM-NOI-1.

Event Noise

As described under Impact NOI-1, the project would include up to eight agricultural promotional events throughout the year, with a maximum of 60 to 200 guests. As shown in Table 3.8-9, the conservative estimate for noise levels for the maximum-attendance scenario (200 guests) would range from 38 dBA L50 at the third-nearest residences, located approximately 1,400 feet to the northwest, to 45 dBA L50 at the nearest residential property line, 600 feet to the north/northeast. For a scenario with 60 guests, the estimates range from approximately 36 dBA L50 to 43 L50. The noise analysis presented under Impact NOI-1 above, also evaluates noise from the parking lot during events. As shown in Table 3.8-10 and Table 3.8-11 above, when combined with the crowd and music noise, the resultant noise levels would range from approximately 42 dBA L50 to 47 dBA L50. These noise levels, although they may be audible at nearby residences in light of the relatively low ambient noise levels, are unlikely to be of a level typically considered intrusive or disturbing. Therefore, impacts from agricultural promotional event noise would be less than significant.

Mitigation

MM-NOI-1 In order to reduce impacts related to construction noise from the proposed project, prior to issuance of grading and building permits the following measures shall be incorporated by the County of Sonoma as conditions on permits, as deemed necessary:

- Hours of construction shall be limited to the hours of 7:00 a.m. to 6:00 p.m. on weekdays.
- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers.
- Construction noise reduction methods, such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and using electric air compressors and similar power tools rather than diesel equipment, shall be used.
- During construction, stationary construction equipment shall be placed such that noise is directed away from or shielded from sensitive noise receivers.
- During construction, stockpiling and vehicle staging areas shall be located far from noise-sensitive receptors.
- The developer shall designate a project manager with authority to implement the mitigation prior to issuance of a building/grading permit. The project manager's phone number shall be conspicuously posted at the construction site. The project manager shall determine the cause of noise complaints (e.g. starting too early, faulty muffler, etc.) and take prompt action to correct the problem.

Significance of Impact After Mitigation

Implementation of the mitigation measure MM-NOI-1 would reduce potential noise impacts during construction to less-than-significant levels.

3.8.3.3 Cumulative Impacts

Impact NOI-6: The project would not contribute to cumulative impacts with respect to noise. This would be a less-than-significant impact.

As described in the impact discussion above, the proposed project would not result in any significant impacts to noise during operations. The analysis of roadway noise considers the cumulative noise scenario resulting from traffic in the vicinity of the project site, which is considered the greatest potential noise source in the area. The proposed project would not result in any cumulative noise impacts during operations. However, a significant impact could occur during construction due to a temporary or periodic increase in ambient noise levels. In the event that construction of other projects in the vicinity of the project site occurs at the same time as the proposed project, cumulative noise impacts during construction could be significant. The proposed project would be required to implement mitigation measure MM-NOI-1 to reduce noise levels during construction to the extent feasible. Other projects in the vicinity would also be expected to implement similar noise reduction measures, as well as the County's recommended measures to reduce construction noise. Although there is the potential for construction of other projects to occur in the vicinity of the project site resulting in a temporary cumulative impact to ambient noise levels, with implementation of mitigation measure MM-NOI-1 the proposed project's contribution to this impact would not be substantial.

Mitigation

See MM-NOI-1.

Significance of Impact After Mitigation

Implementation of the mitigation measure MM-NOI-1 would reduce potential noise impacts during construction to a less-than-significant level.

3.8.4 References

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FIGURE 3.8-1
Noise Measurement and Modeling Locations

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3.9 TRANSPORTATION AND TRAFFIC

This section describes the existing transportation and traffic/circulation setting of the project site, identifies associated regulatory requirements, evaluates potential project level and cumulative impacts, and identifies mitigation measures related to implementation of the proposed project.

The analysis and findings described in this section are based on the Traffic Impact Analysis prepared by TJKM Transportation Consultants provided in Appendix H of this environmental impact report (EIR).

3.9.1 Environmental Setting

This section describes the existing conditions in the project area and also identifies the resources that could be affected by the proposed project.

The project site is located in southeastern Sonoma County approximately 5.5 miles west of the Town of Glen Ellen and 7 miles east of the City of Rohnert Park. Access to the site is provided via Sonoma Mountain Road.

Roadway Network

Figure 3.9-1 illustrates the following key roadways that are located within the vicinity of the project site and included within the project study area:

Sonoma Mountain Road is a two-lane local road that extends approximately 7.6 miles from Bennett Valley Road, southeast of the City of Santa Rosa to Warm Springs Road northwest of the Town of Glen Ellen. Within the immediate vicinity of the project, the road is narrow—approximately 18 to 20 feet wide with no center lane or edge striping. There are no speed limits posted east of Pressley Road, making the section near the proposed winery frontage prima facie 55 miles per hour (mph). However, advisory speeds of 20 mph are posted on Sonoma Mountain Road near the proposed winery frontage. Based on a previous study conducted for the project by W-Trans in 2013 (see Appendix B), the 85th percentile speed for traffic approaching the driveway was found to be approximately 40 mph. Average daily traffic (ADT) along the roadway within the immediate vicinity of the project is 363 vehicles per day. Sonoma Mountain Road is characterized by narrow roadway widths, steep hillsides and embankments along roadway edges, rolling terrain, sharp horizontal and vertical curves, lack of paved shoulders, and trees and vines located directly along the roadway edge. Pavement widths for the roadway vary, with some sections as narrow as 11 feet and others as wide as 22 feet.

Pressley Road is a two-lane local road that extends 2.8 miles between Roberts Road, east of the City of Rohnert Park and terminates at Sonoma Mountain Road near the project site. Pressley

Road is a rural roadway with varied topography, multiple horizontal and vertical curves, and a posted speed limit of 30 mph near Sonoma Mountain Road. At the curves, warning signs with advisory speeds of 10 mph to 20 mph are posted. Pressley Road has two 12-foot-wide travel lanes, divided by a centerline stripe with little or no shoulders provided. ADT along the roadway segment is 609 vehicles per day. Pressley Road is designated as a scenic corridor in the Sonoma County General Plan. The intersection of Sonoma Mountain Road/Pressley Road is a “tee” intersection with Pressley Road stop-controlled. A double yellow centerline stripe is provided at all three approaches of this intersection.

Warm Springs Road is a two-lane rural collector that extends approximately 5.3 miles between State Route (SR) 12 in the Town of Kenwood and Arnold Drive in the Town of Glen Ellen. Warm Springs Road has two 10 to 12-foot-wide travel lanes with variable width shoulders. The posted speed limit is 30 mph.

Bennett Valley Road is identified as a rural major collector in the Sonoma County General Plan. Bennett Valley Road extends approximately 10.7 miles between Santa Rosa and Warm Springs Road in Glen Ellen. Bennett Valley Road has two 12-foot-wide travel lanes with variable shoulder widths. The posted speed limit varies along Bennett Valley Road from 35 to 55 mph. Sonoma Mountain Road/Bennett Valley Road is a “tee” intersection with Sonoma Mountain Road stop-controlled. The posted speed limit on Bennett Valley Road in the vicinity of the intersection is 45 mph.

Driveway Access to the project site is provided via an existing driveway on Sonoma Mountain Road. It is a single lane driveway, which is approximately 12 feet wide with asphalt pavement.

Pedestrian Facilities

Pedestrian facilities typically include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities.

In the project vicinity, no sidewalks are provided. However, pedestrians walking on the travel lane along the Sonoma Mountain Road to access the Sonoma Valley Regional Park were observed during the field visit.

Bicycle Facilities

Bicycle facilities include the following:

- **Bike Paths (Class I)** – Paved trails that are separated from roadways.

- Bike Lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- Bike Routes (Class III) – Designated roadways for bicycle use by signs and markings; may or may not include additional pavement width for cyclists.

The Sonoma County General Plan, adopted on September 2008, designates Sonoma Mountain Road as a proposed Class III Bike Route. “Share the Road” bicycle signs are posted along segments of the roadway. Based on the peak period data collection at each of the study intersections, no bicycle trips were observed during the weekday AM and PM peak hours; however, a total of 17 bicyclists were counted during the Saturday peak hour on Sonoma Mountain Road.

Public Transit

No public transit service is provided in the immediate vicinity of the project site.

Traffic Volumes

Motor vehicle traffic volumes were evaluated at the following three intersections in accordance with the standards set forth by the Level of Service (LOS) policies of the County of Sonoma and in consultation with the County staff:

1. Pressley Road/Sonoma Mountain Road
2. Warm Springs Road/Sonoma Mountain Road
3. Bennett Valley Road/Sonoma Mountain Road

Traffic counts were conducted at each study intersection during AM and PM peak periods for a typical weekday and weekend peak period. The peak period counts for weekday conditions were conducted between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., and the peak period counts for weekend conditions was conducted between 12:30 p.m. to 2:30 p.m. Based on the data collected, the peak hour volume was determined for weekday AM and PM and weekend peak hour conditions. Figure 3.9-2 illustrates existing peak hour traffic volumes, lane geometry, and controls at each study intersection.

24-hour bidirectional traffic volumes data were also collected for a 7-day period during October/November 2015, along the following three roadway segments:

- Sonoma Mountain Road, west of Sonoma Ridge Road
- Sonoma Mountain Road, east of 5312 Sonoma Mountain Road
- Pressley Road, south of Sonoma Mountain Road

Figure 3.9-3 illustrates existing ADT volumes along each of the study area roadways. ADT values shown in the figure were calculated by averaging over the total weekdays and total weekends. Raw counts for Existing Conditions are provided in Appendix H.

Existing Traffic Operations

The existing operations of the study intersections were evaluated for the highest 1-hour volume during the weekday morning and evening peak periods and weekend peak period. Intersection turning movement volumes were counted at each of the study intersections during the weekday AM peak period (7:00 a.m. to 9:00 a.m.), weekday PM peak period (4:00 p.m. to 6:00 p.m.) and weekend peak period (12:30 p.m. to 1:30 p.m.) on December 8-13, 2015, and February 3-13, 2016.

The existing AM, PM, and weekend peak hour volumes for the study intersections are shown in Figure 3.9-2, and the peak period counts are provided in Appendix H. For the intersection analysis, the Peak Hour Factors based on the collected counts were used. The results of the Existing Conditions LOS Analysis using Synchro Software for the Existing Conditions are shown in Table 3.9-1. *Highway Capacity Manual* (HCM) 2010 methodology was followed to analyze the study intersections as explained in Appendix H (TRB 2010). Currently all intersections in the project study area operate at acceptable LOS D or better under existing conditions. Detailed LOS calculations are contained in Appendix H.

**Table 3.9-1
Intersection Levels of Service – Existing Conditions**

ID	Intersection	Intersection Control	AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
			Average Delay ¹	LOS ²	Average Delay ¹	LOS ²	Average Delay ¹	LOS ²
1	Pressley Road/Sonoma Mountain Road	One-way stop	8.9	A	8.8	A	8.9	A
2	Warm Springs Road/Sonoma Mountain Road	One-way stop	10.7	B	9.5	A	9.0	A
3	Sonoma Mountain Road/Bennett Valley Road	One-way stop	12.4	B	13.0	B	11.9	B

Notes:

¹ Control delay for the worst movement is presented for side-street stop-controlled intersection

² LOS = Level of Service

Existing Traffic Safety and Roadway Conditions

TJKM conducted an expanded investigation of existing safety issues and roadway conditions. The following roadway segments were included as part of this analysis:

- Sonoma Mountain Road, between Bennett Valley Road and Pressley Road
- Sonoma Mountain Road, between Pressley Road and Sonoma Ridge Road
- Sonoma Mountain Road, between Sonoma Ridge Road and Mountain Meadow Lane
- Sonoma Mountain Road, between Mountain Meadow Lane and Waldruhe Heights
- Sonoma Mountain Road, between Waldruhe Heights and Warm Springs Road
- Roberts/Pressley Road, between Petaluma Hill Road and Sonoma Mountain Road

Collision History

The collision history for the entire length of Sonoma Mountain Road was evaluated since there is the potential for the public to access the Belden Barns Farmstead and Winery property from either side of Sonoma Mountain Road. Collisions reported along the study roadway segment of Sonoma Mountain Road were obtained from the Statewide Integrated Traffic Records System database for a period of 5 years from January 2011 to December 2015. Most recent statewide collision averages for 2012 were obtained from the California Department of Transportation (Caltrans). The Caltrans average accident rate is 1.14 collisions per million vehicle miles (c/mvm) for rural conventional highway with 2 lanes or less, rolling terrain, and a speed limit less than or equal to 55 mph. There were three reported collisions on Sonoma Mountain Road from Bennett Valley Road to Warm Springs Road during this study period.

For the analysis of the crash data, the 7.6-mile segment of Sonoma Mountain Road from Bennett Valley Road to Warm Springs Road was broken up into the following two segments due to the difference in roadway conditions east and west of Pressley Road:

- Sonoma Mountain Road from Bennett Valley Road to Pressley Road
- Sonoma Mountain Road from Pressley road to Warm Springs Road

Summaries of accident data along the roadway segment is presented in Table 3.9-2.

**Table 3.9-2
Collision Data – Sonoma Mountain Road**

Location	Number of Accidents			Length (miles)	ADT ¹	MVM ²	Actual Accident Rate ³			Caltrans Average Accident Rate ⁴		
	Fatal	Injury	Total				Total Rate (c/mvm ⁵)	Injury (%)	Fatal (%)	Total Rate (c/mvm ⁵)	Injury (%)	Fatal (%)
Sonoma Mountain road from Bennet Valley Road to Pressley Road	0	1	2	2.19	625	2.50	0.80	50	0.00	1.14	44.8	2.2
Sonoma Mountain Road from Pressley road to Warm Springs Road	0	1	1	5.41	346	3.42	0.29	100	0.00	1.14	44.8	2.2

Source: SWITRS 2016

Notes:

- ¹ ADT - Average Daily Traffic
- ² MVM = Million Vehicle Miles
MVM = ADT*365*length*Years/1,000,000
- ³ Accident Rate (Rse) = A*1,000,000/ADT*365*Length*Years
- ⁴ Caltrans 2012, Collision data on California State Highways
- ⁵ c/mvm = collisions per million vehicle miles

The breakdown as shown in Table 3.9-2 shows that the two different segments of Sonoma Mountain Road each have noticeably lower than average collision rates when compared to the statewide average rate for similar highways.

Field Observations

TJKM conducted field observations during December 2015 and observed the following conditions:

Sonoma Mountain Road

Sight Distance—During the conducted field visit, potential locations were identified along Sonoma Mountain Road where drivers' sight distance would be hindered due to a combination of horizontal curves, vertical curves, and vegetation and trees adjacent to the roadway. Figure 3.9-4 shows the identified locations along Sonoma Mountain Road. Table 3.9-3 summarizes the identified locations broken down between the study segments along Sonoma Mountain Road. Detailed information regarding the obstructions to sight distance at the identified locations is provided in Appendix H, along with photos of existing conditions.

**Table 3.9-3
Limited Sight Distance Locations – Sonoma Mountain Road**

Roadway Segment	Location Number	Roadway Width (ft)	Minimum Measured Sight Distance	Reasons for Sight Distance Obstruction
Between Bennett Valley Road and Pressley Road	N/A			N/A
Between Pressley Road and Sonoma Ridge Road	1 to 2	<17	Most curves have 170 to 290 feet	Vegetation, hill, vertical curve, horizontal curve, turnout at curve
Between Sonoma Ridge Road and Mountain Meadow Lane	2 to 14	11 to 20	Most curves have 120 to 240 feet	Vegetation, hill, vertical curve, horizontal curve, turnout at curve
Between Mountain Meadow Lane and Waldruhe Heights	14 to 20	14 to 21	Most curves have 95 to 160 feet	Vegetation, hill, vertical curve, horizontal curve, turnout at curve
Between Waldruhe Heights and Warm Springs Road	20 to 39	12.5 to 18	Most curves have 125 to 185 feet	Vegetation, hill, turnout at curve

Narrow Pavement—The pavement width ranges between 11 feet to 20 feet along Sonoma Mountain Road. As per *A Policy on Geometric Design of Highways and Streets* (AASHTO 2011), the lane width varies from 9 to 10 feet for similarly classified roads having comparable volumes and design speed. Though sufficient warning signs regarding the reduced pavement width and reduced advisory speeds are provided, narrow pavements may cause vehicles to not pass safely considering the topography.

No Paved Shoulder—The entire segment of Sonoma Mountain Road does not have a paved shoulder. The shoulders are made up of dirt that is not well compacted and may present a challenge for vehicles pulling to the side of the road, specifically during adverse weather conditions. In addition, unpaved shoulders often develop deep ruts due to tire wear or erosion.

Blind Curves—Sonoma Mountain Road is too narrow in some places for two vehicles to pass easily and has many sharp horizontal curves that limit how far in advance motorists can identify approaching traffic. Due to its topography, Sonoma Mountain Road has a number of horizontal and vertical curves that can create blind spots in the road based on a motorist’s position. Trying to pass oncoming vehicles could result in a collision if one motorist fails to yield to the other. For example, Figure 3.9-4 shows a steep slope on curve number 14 on the north side and a steep slope upward on the south side of the road. Curve numbers 16, 17, and 18 are other examples that make up a sweeping curve with limited sight distance. Curve number 29 has a sharp turn with a driveway on the south side and trees on the north side of the road.

Elevation Changes—At certain locations, uphill and downhill segments on Sonoma Mountain Road may put increased demands on vehicle brakes. There is also a possibility of skidding during adverse weather conditions while descending roads with steep grades. For example, curve number 17, 18, 31, and 33 include elevation changes of approximately 3%.

Pavement Condition—Sonoma Mountain Road east of the Pressley Road intersection has multiple locations with damaged pavement, potholes, alligator cracking, etc.

Pressley Road

Pressley Road is a two-lane rural roadway with varied topography and multiple horizontal and vertical curves with posted speed limit of 30 mph near Sonoma Mountain Road. At the curves, warning signs with advisory speeds of 10 mph to 20 mph are posted. Pressley Road has two 12-foot-wide travel lanes, divided by a centerline stripe with little or no shoulders provided.

Existing Driveway Sight Distance

The project site is accessed via the project driveway off Sonoma Mountain Road. TJKM conducted its field review of sight distance on December 2015. Clear sight lines of approximately 280 feet are available for outbound left turns based on the visual observations and measurements. Clear sight lines of approximately 270 feet are available for outbound right turns based on the visual observations and measurements.

3.9.2 Regulatory Framework

All roads within the project area are under the jurisdiction of state and local agencies. State jurisdiction includes permitting and regulation of the use of state roads, while local jurisdiction includes implementation of state permitting, policies, and regulations, as well as management and regulation of local roads. Applicable laws and regulations related to traffic and transportation issues are discussed below.

Federal

There are no federal regulations applicable to the proposed project.

State

California Department of Transportation

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The project area does not include any roadways that fall under Caltrans' jurisdiction.

Local

Sonoma County General Plan

Roads in the project study area are under the jurisdiction of Sonoma County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the *Sonoma County General Plan 2020 Circulation and Transit Element* (Sonoma County 2008). The Circulation and Transit Element provides goals and objectives regarding transportation and traffic, including the following that are most relevant to the study area (* denotes Mitigation Policy):

- Goal CT-1** Provide a well integrated and sustainable circulation and transit system that supports a city and community centered growth philosophy through a collaborative effort of all the Cities and the County.
- Objective CT-1.6** Require that circulation and transit system improvements be done in a manner that, to the extent practical, is consistent with community and rural character, minimizes disturbance of the natural environment, minimizes air and noise pollution, and helps reduce greenhouse gas emissions.
- Goal CT-2** Increase the opportunities, where appropriate, for transit systems, pedestrians, bicycling and other alternative modes to reduce the demand for automobile travel.*
- Objective CT-2.10** Utilize shoulders, paths, and bike lanes for other alternative transportation modes along existing streets, roads, and bicycle routes where consistent with public safety and the Vehicle Code.
- Goal CT-3** Establish a viable transportation alternative to the automobile for residents of Sonoma County through a safe and convenient bicycle and pedestrian transportation network, well integrated with transit, that will reduce greenhouse gas emissions, increase outdoor recreational opportunities, and improve public health.
- Objective CT-3.5** Provide incentives for business and government to increase the use of walking and bicycling by employees for both commuting and daily operations.
- Objective CT-3.8** Increase the safety, convenience, and comfort of all pedestrians and bicyclists, by eliminating the potential obstacles to this mode choice that is associated with the lack of continuous and well-connected pedestrian walkways and bicycle facilities, and the lack of safe crossing facilities, especially focusing on short trips that could result in a decrease in automobile travel.

- Goal CT-4** Provide and maintain a highway system capacity that serves projected highway travel demand at acceptable levels of service in keeping with the character of rural and urban communities.
- Objective CT-4.1** Maintain LOS C or better on roadway segments unless a lower LOS has been adopted.
- Objective CT-4.2** Maintain LOS D or better at roadway intersections.*
- Objective CT-4.3** Allow the above levels of service to be exceeded if it is determined to be acceptable due to environmental or community values, or if the project(s) has an overriding public benefit that outweighs lower levels of service and increased congestion.*
- Objective CT-4.4** Utilize the American Association of State Highway Transportation Officials (AASHTO) functional classification system and guidelines for geometric design for the highway network.*
- Objective CT-4.5** Consider developing a Heritage Road Program for Sonoma County. Heritage Roads would be subject to special design guidelines protecting their unique character, while meeting accepted AASHTO safety standards.
- Goal CT-5** Reduce future congestion along the Highway 101 corridor by developing the SMART rail corridor for passenger rail and freight use.*

Sonoma County Bicycle and Pedestrian Plan

The *Sonoma County Bicycle and Pedestrian Plan* (SCBPP) establishes goals, objectives, policies and project priorities for the bicycle and pedestrian network in unincorporated areas of the County. The intent of the plan is to coordinate development of a seamless regional network that integrates with adjacent cities (County of Sonoma 2010).

The SCBPP identifies goals that encourage bicycle and pedestrian mobility throughout Sonoma County, and notes that people are most likely to choose walking in areas with high residential density and relatively short distances to schools, parks, shopping and jobs. With the unincorporated areas of Sonoma County, the SCBPP notes that these conditions are primarily found in Urban Service Areas. The project site is not located within an Urban Service Area.

Sonoma County Transportation Authority

The Sonoma County Transportation Authority (SCTA) was formed as a result of legislation passed in 1990 to serve as the coordinating and advocacy agency for transportation funding for

Sonoma County, and, since 2004, administers Measure M funds generated within Sonoma County through a local sales tax for specific transportation projects in the County. The SCTA partners with other agencies to improve transportation in the County, for programmed projects including Highway 101 widening, local streets, transit, and bicycle and pedestrian facilities.

The *2009 Comprehensive Transportation Plan* for Sonoma County provides further guidance for transportation planning and associated goals and policies (SCTA 2009). This plan focuses on the design and implementation of improvements to the County circulation system, including roadways, bikeways, and rail service.

3.9.3 Impacts and Mitigation Measures

3.9.3.1 Significance Criteria

The significance criteria for this transportation and traffic impact analysis are adapted from the California Environmental Quality Act Guidelines, Appendix G. Based on the guidelines, transportation and traffic impacts resulting from the proposed project would be considered significant if the proposed project would:

1. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
2. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
3. Result in a change in air traffic patterns including either an increase in traffic levels or a change in location that results in substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The *Sonoma County Guidelines for Traffic Impact Studies* (Sonoma County 2015) stipulate that a project's impacts to transportation would be considered significant if they result in any of the following impacts to operational standards for the circulation system providing access to the project site:

- **On-site Roads and Frontage Improvements:** Proposed on-site circulation and street frontage would not meet the County's minimum standards for roadway or driveway design, or potentially result in safety hazards.
- **Parking:** Proposed on-site parking supply would not be adequate to accommodate parking demand.
- **Emergency Access:** The project site would have inadequate emergency access.
- **Alternative Transportation:** The project provides inadequate facilities for alternative transportation modes (e.g., bus turnouts, bicycle racks, pedestrian pathways) and/or the project creates potential conflicts with adopted policies, plans, or programs supporting alternative transportation.
- **Road Hazards:** Project traffic results in substantial increases in potential hazards due to a design feature (e.g., sharp curves or dangerous intersections) or any perceived incompatible uses (e.g., farm equipment).
- **Vehicle Queues:** The addition of project traffic causes the 95th percentile queue length to exceed roadway turn lane storage capacity.
- **Signal Warrants:** The addition of the project's vehicle or pedestrian traffic causes an intersection to meet or exceed Caltrans or CA-MUTCD signal warrant criteria.
- **Turn Lanes:** The addition of project traffic causes an intersection to meet or exceed criteria for provision of a right or left turn lane on an intersection approach.
- **Sight Lines:** The project constructs an unsignalized intersection (including driveways) or adds traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon Caltrans criteria for state highway intersections and AASHTO criteria for County roadway intersections.
- **County Intersections:** The County level of service standard for County intersection operations is to maintain a Level of Service D or better pursuant to General Plan Policy CT-4.2. The project would have a significant traffic impact if the project's traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate at an unacceptable level (LOS E or F).

If the intersection currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average delay to increase by five seconds or more.

- **County Roadway Operations:** The County level of service standard for County roadway operations is to maintain a Level of Service C pursuant to General Plan Policy CT-4.1; or, for specific roadway segments, the level of service standard adopted in the General Plan Figure CT-3. The project would have a significant traffic impact if the project's traffic would cause a road currently operating at an acceptable level of service (LOS C or better) to operate at an unacceptable level (LOS D, E or F).

If a road segment currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average speed to decrease by the amounts shown below.

If the Existing or Projected LOS without project is:	Then the existing average travel speed is (miles per hour [mph]) ¹	The project impact is considered significant if the decrease in average travel speed associated with the project is:
D	40-45 mph	2 mph
E	40 mph or less	1 mph
F		0.5 mph

Notes:

¹ The year 2000 Highway Capacity Manual does not provide an average travel speed breakpoint between LOS E and LOS F operation. These criteria apply to Rural Class 1 roadways. Other roadways will be evaluated on a case-by-case basis.

Criteria Not Applicable to Proposed Project

Due to the location and characteristics of the proposed project, certain significance criteria are not applicable to the proposed project and therefore, are not considered potential impacts. These criteria are addressed briefly below but are not discussed further in this document.

- **Conflict with an applicable congestion management program.** There are no roadways subject to a congestion management agency standard within vicinity of the project site. Therefore, the project would not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- **Result in a change in air traffic patterns.** The proposed project is not located within the vicinity of an airport and the project would not result in a change in air traffic patterns.

3.9.3.2 Impact Discussion

Impact TRA-1: The project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including but not limited to intersections,

streets, highways and freeways, pedestrian and bicycle paths, and mass transit. This would be a less-than-significant impact.

Construction Traffic

The project applicant's anticipated construction schedule was reviewed to determine the level of construction-related project traffic that is expected to be generated during project construction. Construction, from soil excavation and structure demolition to winery and tasting room construction and furnishings, is expected to last approximately 12 to 18 months. Construction-related vehicle trips will consist of two components: construction workers and trucks.

The first stages of construction would involve demolition of existing structures and grading of approximately 2.8 acres of the site. It is estimated that during the approximately 6-month site grading period, there would be approximately 40 truck deliveries total and an average of 5 worker vehicles per day. During the 12 to 18 month of building construction phase there would be a total of approximately 50 concrete trucks and 30 materials delivery trucks. An average of 10 to 12 workers would be on site daily working 8 to 10 hours per day. Construction would not occur on weekends or holidays.

The construction-related trips are expected to be spread over a typical day and occur mostly outside the weekday peak periods. As a result, construction truck trips are expected to have a minimal effect on existing area traffic operations.

Existing Plus Project Analysis

The existing plus project analysis presents the impacts of the proposed project on the roadway system within the study area of the proposed project. To determine if the additional traffic from the proposed project would result in any significant impacts, TJKM used a four-step process:

1. **Trip Generation**—The amount of vehicle traffic entering/exiting the proposed project was projected.
2. **Trip Distribution**—Trip distribution percentages were developed based on the knowledge of the area, proposed land use, and similar studies conducted within the vicinity of the project.
3. **Trip Assignment**—Additional vehicular traffic from the proposed project was then assigned to specific roadway segments and intersections based on the trip distribution percentages.
4. **Impact Analysis**—An impact analysis was conducted to determine if the additional trips would result in any significant impact at the study intersections.

Vehicle Trip Generation

Estimated project trip generation is summarized in Table 3.9-4.

Table 3.9-4
Variation in ADT over the Course of Entire Year

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug1	Sep1	Oct1	Nov	Dec
Employees	27	27	27	27	27	27	27	48	48	48	27	27
Visitors	34	34	34	34	34	34	34	48	48	48	34	34
Trucks	3.14	3.36	3.36	3.36	3.36	3.44	3.44	3.62	3.32	3.32	3.14	3.14
Total²	64	100	99	99	64	64						

Notes:

¹ Months in bold represent harvest season conditions.

² Total values rounded to the nearest whole number.

Trip generation estimates were determined for the following scenarios:

- Daily Truck Trip Generation for harvest season and non-harvest season.
- Daily and Peak Hour Vehicle Trip Generation (Trucks and Passenger Cars) for non-harvest season, harvest season, and proposed agricultural promotional events.

Daily Truck Trips

Table 3.9-5 summarizes the estimated project truck trip generation. The proposed project is expected to generate an average of approximately three to four truck trips per weekday throughout the year. This average takes into account the elimination of 88 existing truck trips that occur during the harvest season for off-hauling grapes, which would occur as a result of the project.

Table 3.9-5
Daily Truck Trip Generation Forecast

Proposed Project Truck Trip Component	Truck Loads	Daily
<i>Truck Traffic</i>		
Pomace Disposal (On Site)	0	0.00
Bottle Delivery (02/01 to 08/31) ¹	5	0.06
Finished Wine Transportation and Storage (02/01 to 08/31) ²	7	0.08
Barrel Delivery (06/01 to 08/31) ³	3	0.08
Miscellaneous Deliveries (02/01 to 08/31) ⁴	6	0.08
Grape Importation (08/01 to 10/31) ⁵	8	0.18
<i>Trucks Year Round</i>		
Milk Importation (01/01 to 12/31) ⁶	96/year	0.76
Cheese Transportation (01/01 to 12/31) ⁷	48/year	0.38
Miscellaneous Visitors, UPS, Mail, Garbage, etc. (1/01 to 12/31)		2.00
Year Round Daily Truck Trips		3.14
Average Daily Truck Trips – Non-harvest Season⁸		3.44
Average Daily Truck Trips – Harvest Season⁸		3.62

Notes:

¹ Bottle Delivery: Five truck loads between the months of February and August

- Number of days between February 1 and August 31 = 213 days
 Number of working days (weekdays) = 157 days
 Daily Trips (In and Out) = $(5/157)*2 = 0.06$
- 2 Finished Wine Transportation and Storage: Seven Truck loads between the months of February and August
 Number of days between February 1 and August 31 = 213 days
 Number of working days (weekdays) = 157 days
- 3 Barrel Delivery: Three truck loads between the months of June and August
 Number of days between June 1 and August 31 = 92 days
 Number of working days (weekdays) = 73 days
- 4 Miscellaneous Deliveries (e.g., corks, labels): Six truck loads during the months of February and August
 Number of days between February 1 and August 31 = 213 days
 Number of working days (weekdays) = 157 days
- 5 Grape Importation: Eight truck loads between the months of August and October
 Number of days between August 1 and October 31 = 92
 Number of working days (excluding holidays) = 90 days
- 6 Milk Importation: Two truck loads per week annually
 96 truck loads per year. This equals 0.76 daily trips $(0.38*2)$.
- 7 Cheese Transportation: One truck load per week annually
 48 truck loads per year. This equals 0.38 daily trips $(0.19*2)$.
- 8 Non-Harvest and Harvest Season Average Daily Truck Trips include year round truck trips.

Total Daily Vehicle Trips

Table 3.9-6 summarizes the daily trip generation expected to be generated by the proposed project during the non-harvest season, harvest season, and events. Daily trips consist of the trips expected to be generated by winery employees, trucks, wine tasting visitors, and event visitors. The proposed project is expected to generate 64 vehicle trips per day during the non-harvest season, 100 vehicle trips per day during the harvest season, and 211 vehicle trips per day during events.

Peak Hour Vehicle Trip Generation

Table 3.9-7 summarizes the weekday AM, weekday PM, and weekend peak hour trips. The peak hour trips are estimated from the daily trips expected to be generated by the proposed project. The project trip estimates were determined for following three scenarios:

1. ***Non-harvest Season.*** The proposed project is expected to have approximately 9 employees and 42 visitors per day during the non-harvest season. The employees are expected to generate 9 vehicle trips during the weekday AM and PM peak hour and 10 during the weekend peak hour. The visitors are expected to generate 0 vehicle trips during the weekday AM peak hour, 9 vehicle trips during the weekday PM peak hour, and 17 vehicle trips during the weekend peak hour. Trucks are expected to generate 3 vehicle trips during the weekday AM and PM peak hour.
2. ***Harvest Season (Scenario 1).*** The proposed project is expected to have approximately 16 employees and 60 visitors per day during the harvest season. The employees are expected to generate 16 vehicle trips during the weekday AM and PM peak hour and 10 during the weekend peak hour. The visitors are expected to generate 0 vehicle trips during the AM peak hour, 12 vehicle trips during the PM peak hour and 24 vehicle trips during weekend

peak hour. Trucks are expected to generate 4 vehicle trips during the weekday AM and PM peak hour.

3. **Events (Scenario 2).** The proposed project includes eight events on weekends only with variable participant levels. For a 200-person maximum event on site, the project is expected to generate 80 vehicle trips during the weekend peak hour.

The traffic analysis only evaluates the harvest season (scenario 1) and events (scenario 2) as they represent the worst-case scenario.

**Table 3.9-6
Daily Vehicle Trip Generation Forecast**

No.	Daily Vehicle Trip Component	Quantity	Daily	
			Rate	Trips
<i>Non-harvest Season</i>				
1	Winery Employees			
	Winery Production and Storage	2	3.00	6
	Cheese making	2	3.00	6
	Administrative	1	3.00	3
	Tasting Room	4	3.00	12
2	Truck Trips			3
3	Tasting Visitors	42 visitors/day	0.80	34
<i>Total Non-harvest Season Trips</i>				64
<i>Harvest Season (August to October)—Scenario 1</i>				
4	Winery Employees			
	Harvest Season employees	16	3.00	48
5	Truck Trips			4
6	Tasting Visitors	60 visitors/day	0.80	48
<i>Total Harvest Season Trips—Scenario 1</i>				100
<i>Events—Scenario 2</i>				
7	Visitors	200 visitors/event	0.80	160
8	Trucks Trips			3
9	Employees	16	3.00	48
Total Events Trips—Scenario 2				211

Notes:

1. **Non-harvest Season:** Number of wine tasting visitors = 42 persons/day; Vehicle occupancy = 2.5 persons/vehicle; total vehicular trips = $(42/2.5)*2 = 34$ vehicular trips/day
2. **Harvest Season:** Number of wine tasting visitors = 60 persons/day; Vehicle occupancy = 2.5 persons/vehicle; total vehicular trips = $(60/2.5)*2 = 48$ vehicular trips/day;
3. **Events:** Event visitors = maximum 200-visitor event on a Saturday with all inbound arrivals occurring during Saturday afternoon peak hour; vehicle occupancy = 2.5 person/vehicle; total vehicular trips = $200/2.5 = 80$ vehicular trips/event

**Table 3.9-7
Peak Hour Vehicle Trip Generation Forecast**

No.	Peak Hour Vehicle Trip Component	AM Peak			PM Peak			Weekend Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
<i>Non-harvest Season</i>										
1	Winery Employees									
	Winery Production and Storage	2	0	2	0	2	2	1	1	2
	Cheese making	2	0	2	0	2	2	1	1	2
	Administrative	1	0	1	0	1	1	1	1	2
	Tasting Room	4	0	4	0	4	4	2	2	4
2	Truck Trips	2	0	2	0	2	2	0	0	0
3	Tasting Visitors	0	0	0	4	5	9	8	9	17
	<i>Total Non-harvest Season Trips</i>	11	0	11	4	16	20	13	14	27
<i>Harvest Season (August to October)—Scenario 1</i>										
4	Winery Employees									
	Harvest Season employees	16	0	16	0	16	16	5	5	10
5	Truck Trips	3	0	3	0	3	3	0	0	0
6	Tasting Visitors	0	0	0	6	6	12	12	12	24
	<i>Total Harvest Season Trips—Scenario 1</i>	19	0	19	6	25	31	17	17	34
<i>Events—Scenario 2</i>										
7	Visitors	N/A						80	0	80
8	Trucks Trips	N/A						0	0	0
9	Employees	N/A						0	0	0
	Total Events Trips—Scenario 2						80	0	80	

Notes:

- Non-harvest Season:** Weekend employee peak hour trips assumption: 10 lunchtime trips
Weekend peak hour tasting visitor trips = Assumed 50% of the daily trips
Weekday peak hour tasting visitor trips = Assumed 50% of the weekend trips
During the AM peak hour, zero visitor trips are assumed since wineries typically open after 11:00 a.m.
- Harvest Season:** Weekend employee peak hour trip assumption: 10 lunchtime trips
Weekend peak hour tasting visitor trips = Assumed 50% of the daily trips
Weekday peak hour tasting visitor trips = Assumed 50% of the weekend trips
- Events:** Event visitors = maximum 200-visitor event on a Saturday with all inbound arrivals occurring during Saturday afternoon peak hour; vehicle occupancy = 2.5 person/vehicle; total vehicular trips = 200/2.5 = 80 vehicular trips/event

Trip Distribution and Assignment

Trip distribution is the process of determining the proportion of vehicles that would travel between the proposed project and various destinations in the vicinity of the study area. Trip assignment is the process of determining the various paths vehicles would take from the project site to each destination.

TJKM developed trip distribution percentages for project traffic based on existing traffic patterns and regional travel time patterns. Regional travel time patterns indicate that visitors travelling from San Francisco, Oakland or San Jose would come from the west of the project. Local winery visitors would be relatively balanced between east and west of the project. Based on the regional travel time patterns, the distribution assumptions for the proposed project are summarized below:

- 75% to/from west side of the proposed project site. (40% of the total 75% to/from Sonoma Mountain Road from Bennett Valley Road and Pressley Road. 35% of the total 75% to/from Pressley Road.)
- 25% to/from east side of the project site. (20% of the total 25% to/from Warm Springs Road east of Sonoma Mountain Road. 5% of the total 25% to/from Warm Springs Road between Sonoma Mountain Road and Bennett Valley Road.)

The proposed trip distribution and assignment for harvest season is shown in Figure 3.9-5a, and proposed trip distribution and assignment during the proposed events is shown in Figure 3.9-5b. For each analysis scenario, the assigned project trips were added to the traffic volumes under “no project” conditions to determine “plus project” turning movement demands at the study intersections and roadway segments.

Intersection Levels of Service – Existing plus Project Conditions

The intersection LOS analysis results for Existing plus Project Conditions are summarized in Table 3.9-8. Detailed calculation sheets for Existing plus Project Conditions are provided in Appendix H. The results indicated that all of the study intersections would continue to operate at acceptable LOS D or better with the addition of the traffic generated from the proposed project. The proposed project is not projected to have any significant impacts at the study intersections under Existing plus Project Conditions.

Peak hour turning movement volumes under Existing plus Project Conditions for Scenario 1 are illustrated in Figure 3.9-6a, and peak hour turning movement volumes under Existing plus project Conditions for Scenario 2 are illustrated in Figure 3.9-6b.

**Table 3.9-8
Intersection Levels of Service – Existing plus Project Conditions**

ID	Intersection	Peak Hour	Existing Conditions		Existing plus Project Conditions Scenario 1		Existing plus Project Conditions Scenario 2	
			Average Delay ¹	LOS ²	Average Delay ¹	LOS ²	Average Delay ¹	LOS ²
1	Pressley Road/Sonoma Mountain Road	AM	8.9	A	8.9	A	—	—
		PM	8.8	A	9.0	A	—	—
		Weekend	8.9	A	9.1	A	9.2	A
2	Warm Springs Road/Sonoma Mountain Road	AM	10.7	B	10.8	B	—	—
		PM	9.5	A	9.5	B	—	—
		Weekend	9.0	A	9.1	A	9.0	A
3	Sonoma Mountain Road/Bennett Valley Road	AM	12.4	B	12.7	B	—	—
		PM	13.0	B	13.2	B	—	—
		Weekend	11.9	B	12.0	B	12.2	B

Notes:

- ¹ Control delay for the worst movement is presented for side-street stop-controlled intersections.
- ² LOS = Level of Service

Cumulative Analysis

Cumulative No Project Conditions

The Cumulative No Project analysis scenario is defined as projected conditions in year 2040 without the proposed project. This scenario is similar to the Existing Conditions, but with a projected growth rate of 2% per year applied over 25 years to estimate traffic demands for the Horizon Year 2040. TJKM calculated the growth rate using the SCTA model volumes for the 2040 Horizon Year and comparing it to 2010 volumes. The average growth rate was calculated as 1.8% but 2% was applied for a conservative analysis.

The intersection LOS analysis results for Cumulative Conditions are summarized in Table 3.9-9. Detailed calculation sheets for Cumulative Conditions are provided in Appendix H. Under Cumulative (Year 2040) Conditions without project, all of the study intersections are projected to continue to operate at LOS D or better. Figure 3.9-7 shows projected turning movement volumes at all of the study intersections for Cumulative No Project Conditions.

**Table 3.9-9
Intersection Level of Service – Cumulative No Project Conditions**

ID	Intersection	Intersection Control	AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
			Average Delay ¹	LOS ²	Average Delay ¹	LOS ²	Average Delay ¹	LOS ²
1	Pressley Road/Sonoma Mountain Road	One-way stop	9.2	A	9.1	A	9.3	A
2	Warm Springs Road/Sonoma Mountain Road	One-way stop	12.9	B	10.7	B	9.5	A
3	Sonoma Mountain Road/Bennett Valley Road	One-way stop	20.5	C	22.5	C	17.9	C

Notes:

¹ Control delay for the worst movement is presented for side-street stop-controlled intersections.

² LOS = Level of Service

Cumulative Plus Project Intersection Conditions

This scenario is similar to the Cumulative Conditions, with the addition of projected traffic demands from the proposed project. Under Cumulative (Year 2040) plus Project Conditions, TJKM used the same project trip generation, distribution, and assignment assumed under Existing plus Project Conditions, since the project applicant states that the winery will have the same annual production and 200-person maximum agricultural promotional event in the future.

The intersection LOS analysis results for Cumulative plus Project Conditions are summarized in Table 3.9-10. Detailed calculation sheets for Cumulative plus Project Conditions are provided in Appendix H. The results indicated that all of the study intersections would continue to operate at acceptable LOS D or better with the addition of the traffic generated from the proposed project. The proposed project would not have any significant impacts at the study intersections under Cumulative plus Project Conditions with the addition of the traffic anticipated to be generated from the proposed project.

The Cumulative plus Project volumes, lane geometries, and controls for harvest season are illustrated in Figure 3.9-8a, and Cumulative plus Project demands, lane geometries, and controls for the proposed events are illustrated in Figure 3.9-8b.

Table 3.9-10
Intersection Level of Service – Cumulative plus Project Conditions

ID	Intersection	Peak Hour	Cumulative Conditions		Cumulative plus Project Conditions - Scenario 1		Cumulative plus Project Conditions - Scenario 2	
			Average Delay ¹	LOS ²	Average Delay ¹	LOS ²	Average Delay ¹	LOS ²
1	Pressley Road/Sonoma Mountain Road	AM	9.2	A	9.2	A	—	—
		PM	9.1	A	9.3	A	—	—
		Weekend	9.3	A	9.5	A	9.6	A
2	Warm Springs Road/Sonoma Mountain Road	AM	12.9	B	13.1	B	—	—
		PM	10.7	B	10.6	B	—	—
		Weekend	9.5	A	9.7	A	9.6	A
3	Sonoma Mountain Road/Bennett Valley Road	AM	20.5	C	20.9	C	—	—
		PM	22.5	C	23.4	C	—	—
		Weekend	17.9	C	18.4	C	18.9	C

Notes:

¹ Control delay for the worst movement is presented for side-street stop-controlled intersections.

² LOS = Level of Service

Roadway Segment Analysis

TJKM evaluated daily traffic operations for the study roadway segments along Sonoma Mountain Road and Pressley Road using the Sonoma County General Plan definitions for rural roads, based on the rural geometric, population, and existing traffic volume characteristics of these roads.

For daily traffic operations, LOS is determined based on the rural roadway classification and the ADT of a given roadway segment. The Sonoma County General Plan classifies two-lane rural roads with good geometrics (as defined by the AASHTO Green Book) to be operating at LOS C up to 5,000 daily vehicles, and at LOS D up to 5,600 daily vehicles. Where a rural roadway is effectively one lane wide, ADT for LOS C is up to 1,200 daily vehicles, and up to 1,400 daily vehicles for LOS D.

Table 3.9-11 summarizes the results of a roadway segment analysis. This analysis was conducted based on the daily traffic volumes collected during the months of October and November 2015. ADT along the study roadway segments is illustrated in Figure 3.9-9a for Existing plus Project Conditions, Figure 3.9-9b for Cumulative Conditions, and Figure 3.9-9c for Cumulative plus Project Conditions. Based on two-lane rural roads with good geometries and on a rural roadway being effectively one lane wide, the study area roadway segments remain at acceptable LOS C or better under all scenarios. Therefore, the proposed project would not have any significant impacts to the study roadway segments under Existing plus Project Conditions or Cumulative plus Project Conditions.

**Table 3.9-11
Roadway Segment Analysis**

ID	Roadway Segment	Width (feet)	Day	Existing Conditions		Existing plus Project Conditions Scenario 1		Existing plus Project Conditions Scenario 2		Cumulative Conditions		Cumulative plus Project Condition Scenario 1		Cumulative plus Project Condition Scenario 2	
				Volume (ADT) ¹	LOS ²	Volume (ADT) ¹	LOS ²	Volume (ADT) ¹	LOS ²	Volume (ADT) ¹	LOS ²	Volume (ADT) ¹	LOS ²	Volume (ADT) ¹	LOS ²
1	Pressley Road south of Sonoma Mountain Road	18	Weekday	667	A	702	A	—	—	1094	B	1129	B	—	—
			Weekend	550	A	585	A	624	A	902	B	937	B	976	B
2	Sonoma Mountain Road, east of 5312 Sonoma Mountain Road	18	Weekday	439	A	464	A	—	—	720	C	745	C	—	—
			Weekend	385	A	410	A	438	A	632	B	657	B	684	B
3	Sonoma Mountain Road, west of Sonoma Ridge Road	18	Weekday	351	A	425	A	—	—	576	B	651	B	—	—
			Weekend	276	A	351	A	434	A	453	A	528	B	686	B

Notes:¹ ADT = Average daily Traffic² LOS = Level of Service

Queuing Analysis at Selected Study Intersections

TJKM conducted a vehicle queuing and storage analysis for all exclusive left-turn pockets at study intersections where project traffic is added under plus project conditions. The 95th percentile (maximum) queues were analyzed using Synchro software. Detailed calculations are included in the LOS appendices corresponding to each analysis scenario. Table 3.9-12 summarizes the 95th percentile queue lengths at selected study intersections under all study scenarios. Based on the queuing analysis conducted it is projected that the proposed project would not have a significant impact on the left-turn queues at the study intersections.

**Table 3.9-12
95th Percentile Queues Affected by Project Traffic**

ID	Intersection	Lane Group	Peak Hour	Existing Conditions	Existing plus Project		Cumulative Conditions	Cumulative plus Project Conditions	
					Scenario 1	Scenario 2		Scenario 1	Scenario 2
1	Pressley Road/Sonoma Mountain Road	EBL	AM	25	25	—	25	25	—
			PM	25	25	—	25	25	—
			Weekend	25	25	25	25	25	25
2	Warm Springs Road/Sonoma Mountain Road	NBL	AM	25	25	—	25	25	—
			PM	25	25	—	25	25	—
			Weekend	25	25	25	25	25	25
3	Sonoma Mountain Road/Bennett Valley Road	NBL	AM	25	25	—	50	50	—
			PM	25	25	—	50	50	—
			Weekend	25	25	25	50	50	50

Notes: EBL = eastbound lane; NBL = northbound lane
 1. 95th percentile queue is expressed in feet per lane.
 2. Car length assumed to be 25 feet.

Queuing and Level of Service at Project Driveway

TJKM conducted a vehicle queuing and LOS analysis at the proposed project driveway on Sonoma Mountain Road. The 95th percentile (maximum) queues were analyzed using Synchro software for the project driveway. Table 3.9-13 summarizes the 95th percentile queue lengths and LOS at the project driveways under Existing plus Project and Cumulative plus Project scenario. It should be noted that for the driveway analysis total project trips were assigned on the proposed driveway. As shown in Table 3.9-13, under Existing plus Project conditions and Cumulative plus Project conditions, the project driveway is expected to operate at an acceptable LOS. In addition, the 95th percentile queuing at the outbound approach of the project driveway is expected to be minimal and would not have a significant impact on the left-turn and right-turn queues.

Table 3.9-13
95th Percentile Queues and Level of Service at Project Driveway

ID	Intersection	Lane Group	Peak Hour	Existing plus Project		Cumulative plus Project Conditions	
				Scenario 1	Scenario 2	Scenario 1	Scenario 2
1	Project Driveway/Sonoma Mountain Road	NBL	AM	0	—	0	—
			PM	25	—	25	—
			Weekend	25	0	25	0

Notes: NBL = northbound lane

1. 95th percentile queue is expressed in feet per lane.

2. Car length assumed to be 25 feet.

Mitigation

No mitigation measures are required.

Impact TRA-2: The project would not substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment). This would be a less-than-significant impact.

The proposed project is estimated to increase traffic volume by 6% on a low volume segment of Sonoma Mountain Road. The project does not propose to modify existing roadway design features with the exception of the single driveway location as described below. The proposed driveway design includes vegetation removal to provide adequate stopping sight distance as described below. Therefore, given the low collision rate and the modest increase in traffic, the project is not anticipated to substantially increase hazards due to a design feature or incompatible uses.

TJKM conducted an expanded investigation of the potential for the proposed project to cause significant road degradation and safety issues. The following roadway segments were included as part of this analysis:

- Sonoma Mountain Road, between Bennett Valley Road and Pressley Road
- Sonoma Mountain Road, between Pressley Road and Sonoma Ridge Road
- Sonoma Mountain Road, between Sonoma Ridge Road and Mountain Meadow Lane
- Sonoma Mountain Road, between Mountain Meadow Lane and Waldruhe Heights
- Sonoma Mountain Road, between Waldruhe Heights and Warm Springs Road
- Roberts Road/Pressley Road, between Petaluma Hill Road and Sonoma Mountain Road

Traffic Safety Analysis

The proposed project is expected to generate 64 daily trips during non-harvest season, 100 daily trips during harvest season, and 211 daily trips during events. The primary access concerns are the narrow width and horizontal curves of Sonoma Mountain Road that lead to the project site driveway. Though the 6% increase in the traffic generated from the proposed project would not significantly impact Sonoma Mountain Road in terms of traffic operations as described above, it could present challenges for the drivers unfamiliar with the poor road conditions east of the project site. As described in the project description, the project applicant would request that all guests travel to the project site only from the south or west (from Santa Rosa or Rohnert Park) via Bennett Valley Road to Sonoma Mountain Road and not from Glen Ellen via Warm Springs Road and the eastern portion of Sonoma Mountain Road. This would further reduce the number of vehicles using this segment to access the project site. In addition, the proposed project is not anticipated to result in any increased hazards or incompatible uses on Pressley Road.

Driveway Sight Distance Analysis

TJKM's evaluation of sight distance was conducted based on sight distance criteria contained in the AASHTO reference *A Policy on Geometric Design of Highways and Streets*, also known as the AASHTO Green Book. As defined in the AASHTO Green Book, sight distance is the unobstructed length of roadway ahead that is visible to a driver. Available sight distance should be long enough for a vehicle traveling at or near the roadway design speed to come to a complete stop before reaching a stationary object in its path, for example a vehicle turning out of a driveway (AASHTO 2011).

The project site would continue to be accessed via the project driveway off Sonoma Mountain Road. To complete an outbound left turn or right turn from the project driveway, 305 feet of sight distance is required based on the 85th percentile speed of 40 mph on Sonoma Mountain Road in the immediate vicinity of the project driveway. In addition, westbound drivers on Sonoma Mountain Road coming out of the horizontal curve approaching the project driveway would need adequate site distance to perceive and brake for any vehicles that are stopped in the roadway, waiting to turn left into the project site. This situation could occur and be particularly acute during agricultural promotional events. Effective available stopping sight distance of 305 feet is required approaching the project site driveway from the east. The project would include vegetation removal to provide 445 feet of sight distance to the east and 385 feet of sight distance to the west of the project driveway. The proposed vegetation removal would reduce potential impacts due to driveway site distance to less than significant.

Pavement Deterioration and Traffic Index Analysis

As explained in the Caltrans HDM (Chapter 610, Pavement Engineering Considerations), roadway pavement degrades over time for various reasons, including weather conditions and other environmental factors, but the primary factor affecting pavement conditions and its service life is the wear and tear from tire/pavement interaction associated with heavy vehicles. Heavy traffic is the most important factor influencing pavement performance. The performance of pavement is mostly influenced by the loading magnitude, configuration, and the number of load repetitions by heavy vehicles. Traffic Index (TI) is a measure of the number of Equivalent Single-Axle Loads (ESAL) expected on a traffic lane over the pavement design life of the facility. TI is determined by projecting the ESALs to estimate total accumulated traffic loading during the pavement design life. A method of judging the effect of increased truck traffic on pavement conditions is to compare TI values for existing conditions versus existing plus project conditions. Per County significance criteria, project road wear is significant if it would increase heavy truck traffic volumes that would increase the TI by more than 1.5 on roadways built to accommodate heavy truck traffic, and by more than 0.5 on other roadways.

For purposes of conservative analysis, it was assumed that trucks would make up 10% of the average daily volumes. Table 3.9-14 below summarizes the results of TI analysis for Sonoma Mountain Road near the vicinity of the project. TI analysis and calculations are provided in Appendix H.

**Table 3.9-14
Traffic Index Analysis**

Roadway Segment	Existing Conditions			Existing Plus Project Conditions		
	ESAL	TI Based on Caltrans Procedure	TI Calculated	ESAL	TI Based on Caltrans Procedure	TI Calculated
Sonoma Mountain Road, West of Sonoma Ridge Road	136,896	7.0	7.1	166,336	7.5	7.3
Sonoma Mountain Road, East of 5312 Sonoma Mountain Road	183,264	7.5	7.4	190,624	7.5	7.4

Notes: ESAL = Equivalent Single-Axle Load; TI = Traffic Index

The applicable TI significance threshold for Sonoma Mountain Road is an increase of more than 0.5. As shown in Table 3.9-14, the impact is not significant.

Mitigation

No mitigation measures are required.

Impact TRA-3: The project would not result in inadequate emergency access. This would be a less-than-significant impact.

The proposed project access on Sonoma Mountain Road is located approximately 1.3 miles to the east of the intersection of Pressley Road/Sonoma Mountain Road and 4.5 miles to the west of the intersection of Warms Springs Road/Sonoma Mountain Road. Based on the evaluation, the project driveway is expected to be adequate for passenger vehicles accessing the site, and would operate at an acceptable LOS. In addition, the 95th percentile queueing at the outbound approach of project driveway is expected to be minimal. Figure 3.9-10a shows the project trips at the driveways for Scenario 1, and Figure 3.9-10b shows the project trips at the driveways for Scenario 2.

TJKM also examined the project site plan in order to evaluate the adequacy of on-site circulation for vehicles, refueling trucks, delivery trucks, and emergency vehicles. The existing driveway apron has a width of approximately 24 feet, and the existing internal driveway has a varying width of 12 feet to 16 feet. Based on the preliminary grading plan for the project, the driveway apron would be widened to a width of more than 30 feet, and the internal driveway would have a width of approximately 16 feet. The site plan would be adequate to accommodate internal truck and motor vehicle circulation, with one-way circulation on some segments.

The internal circulation was also reviewed for issues related to queueing, turning radii, and safety and circulation aisles. All circulation aisles accommodate two-way travel, with one-way travel on some segments and the turning radii would be adequate for delivery trucks. Emergency vehicles would access the project via the same project driveway.

The project would provide a total of 97 parking spaces, including 80 event parking spaces, 16 regular spaces, and one Americans with Disabilities Act (ADA)-compliant parking space. The event parking spaces would be unpaved. Estimated peak parking demand on site would be 96 vehicles during the proposed 200-person event, which includes the vehicles of 80 visitors and 16 employees. This on-site parking supply would be adequate to meet expected demands for employees and tasting room visitors during the proposed events. Therefore, off-site parking would not be required for the project and would not cause any impacts to emergency access.

Mitigation

No mitigation measures are required.

Impact TRA-4: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. This would be a less-than-significant impact.

Pedestrian Facilities

An impact to pedestrians would occur if the proposed project would disrupt existing pedestrian facilities, or create inconsistencies with planned pedestrian facilities or adopted pedestrian system plans, guidelines, policies or standards conflict as per the County of Sonoma. As there are no existing pedestrian facilities near the project site and with adequate on-site parking and circulation insuring vehicles do not park along the shoulders of Sonoma Mountain Road, the proposed project is not expected to create any significant impacts.

Bicycle Facilities

An impact to bicyclists would occur if the proposed project would disrupt existing bicycle facilities, or conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies or standards as per the County of Sonoma.

Based on the Sonoma County General Plan adopted in September 2008, Sonoma Mountain Road is a Class III Bike Route. “Share the Road” bicycle signs are posted on Sonoma Mountain Road. The proposed project is expected to increase vehicular traffic on Sonoma Mountain Road by 6%; hence, there would not be a significant change from existing conditions. Although not required to mitigate project impacts, the County may consider installing an additional “Share the Road” sign east of the Pressley Road intersection. Impacts would be less than significant.

Public Transit

There are no public transit facilities within vicinity of the project site. Impacts to public transit facilities would be less than significant.

Mitigation

No mitigation measures are required.

3.9.4 References

AASHTO (American Association of State Highway Transportation Officials). 2011. *A Policy on Geometric Design of Highways and Streets*. 6th edition.

Caltrans (California Department of Transportation). 2012. “Collision Data on California State Highways.”

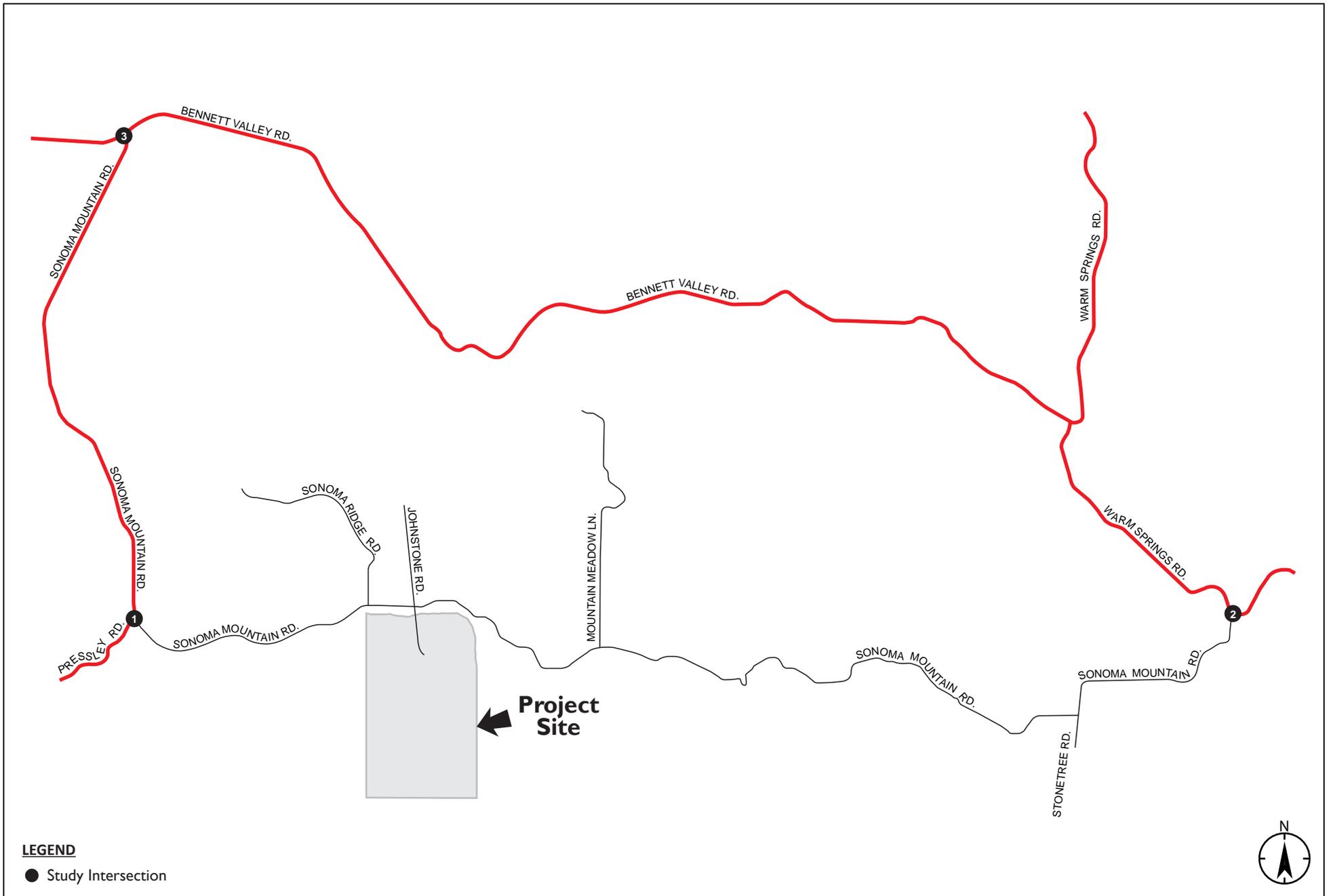
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SCTA (Sonoma County Transportation Authority). 2009. *2009 Comprehensive Transportation Plan*. http://scta.ca.gov/reports/Comprehensive_Transportation_Plan/ctp_2009/FinalCTP2009.pdf.

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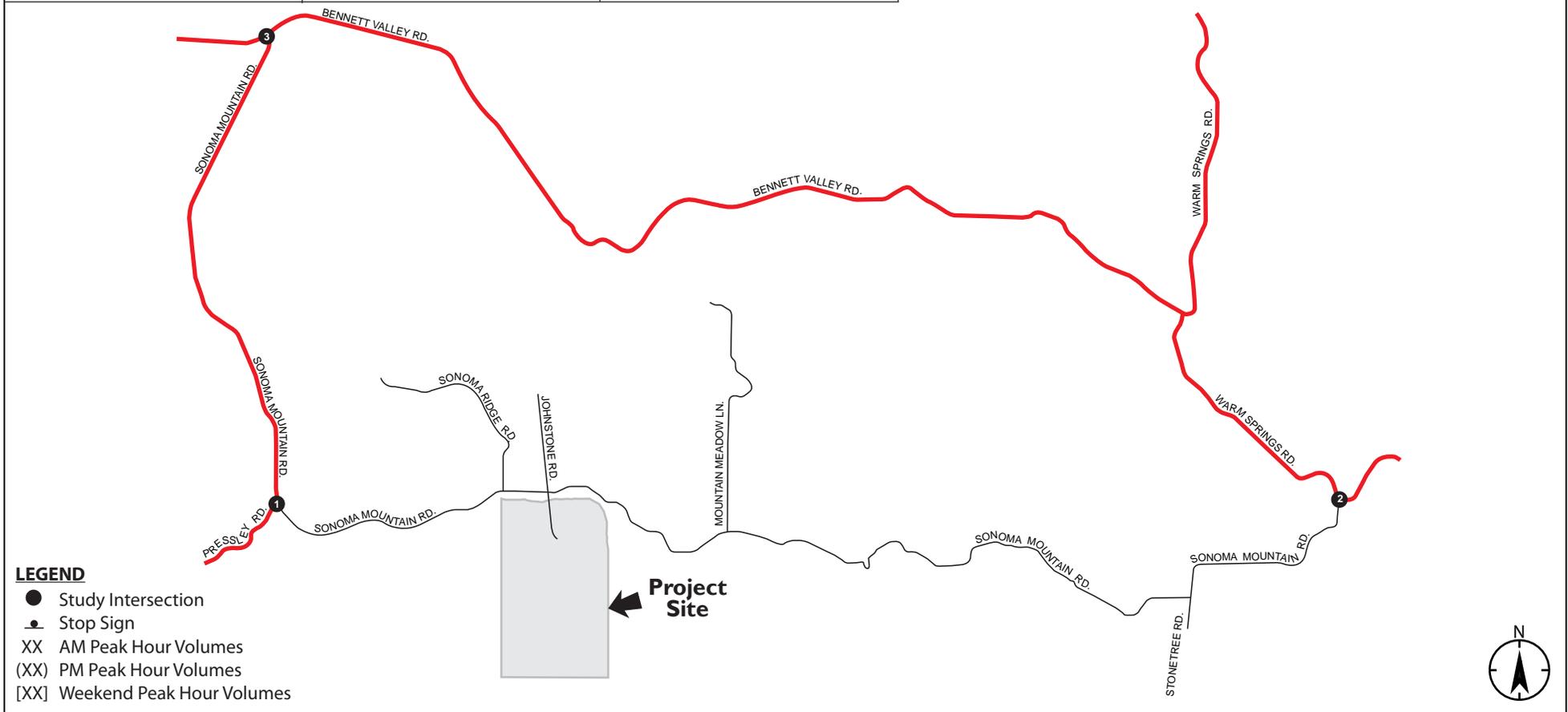


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- Study Intersection

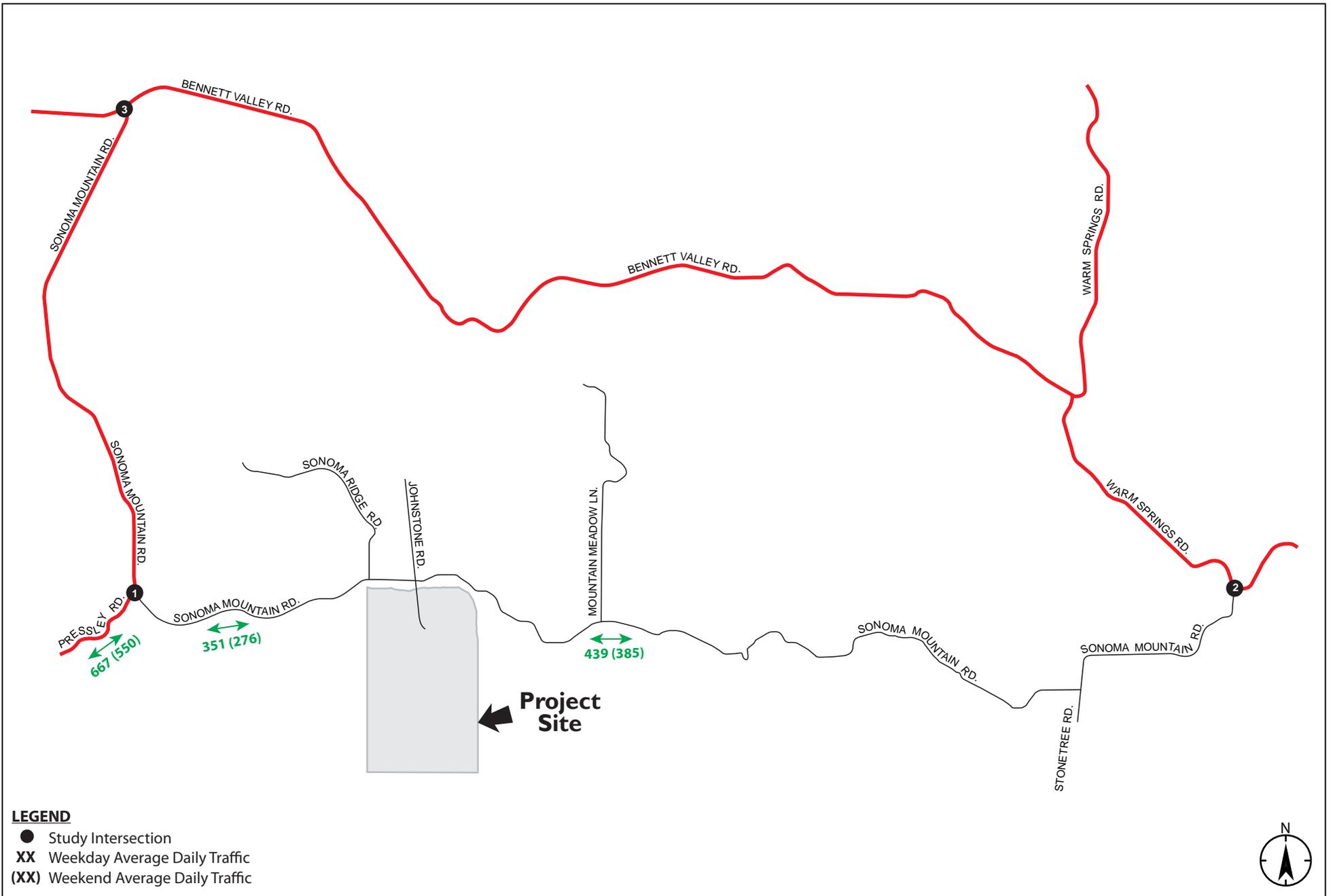
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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.
<p>Pressley Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes and lane geometry.</p>	<p>Warm Springs Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes and lane geometry.</p>	<p>Bennett Valley Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes and lane geometry.</p>

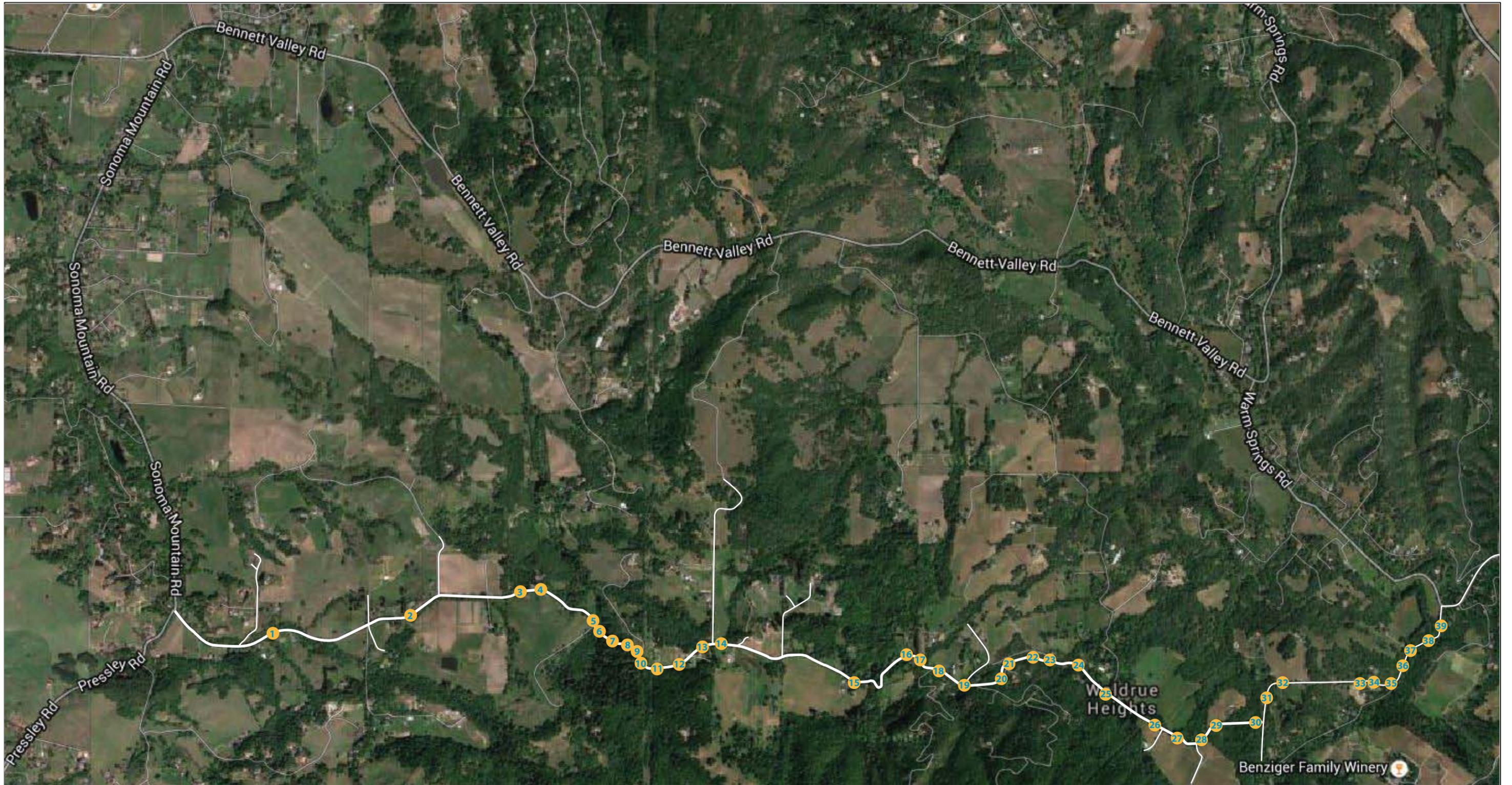


- LEGEND**
- Study Intersection
 - ⬇ Stop Sign
 - XX AM Peak Hour Volumes
 - (XX) PM Peak Hour Volumes
 - [XX] Weekend Peak Hour Volumes

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Limited Sight Distance Location

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SOURCE: TJKM

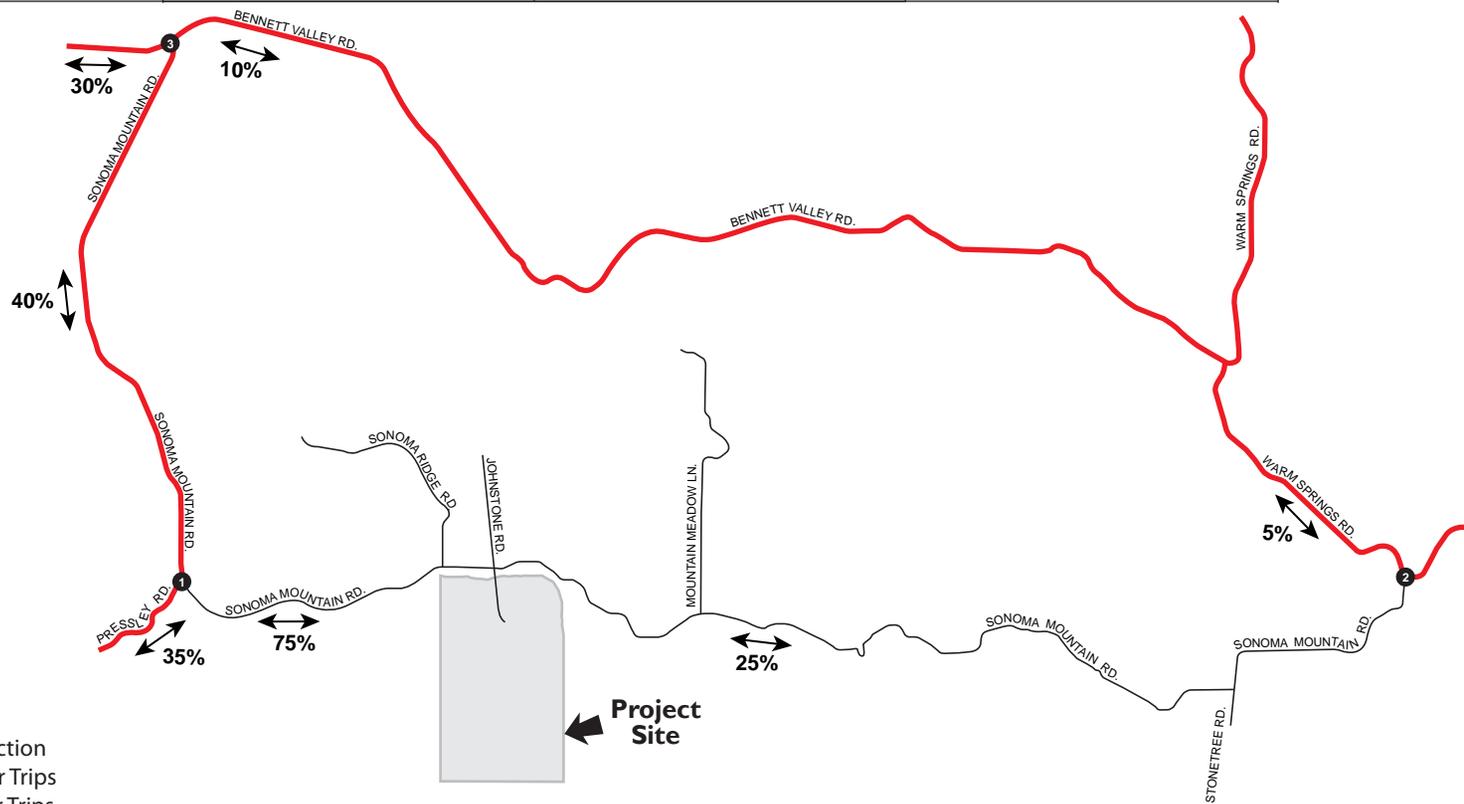
Belden Barns Farmstead and Winery Draft EIR

FIGURE 3.9-4

Limited Sight Distance Locations

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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.	Project Driveway Johnstone Rd. / Sonoma Mountain Rd.
<p>Diagram of Intersection #1: Pressley Rd. / Sonoma Mountain Rd. showing traffic flow and trip counts.</p>	<p>Diagram of Intersection #2: Warm Springs Rd. / Sonoma Mountain Rd. showing traffic flow and trip counts.</p>	<p>Diagram of Intersection #3: Bennett Valley Rd. / Sonoma Mountain Rd. showing traffic flow and trip counts.</p>	<p>Diagram of Project Driveway: Johnstone Rd. / Sonoma Mountain Rd. showing traffic flow and trip counts.</p>

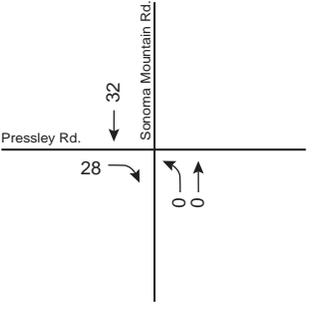
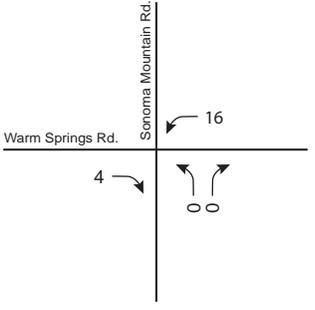
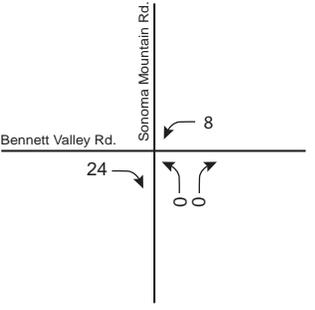
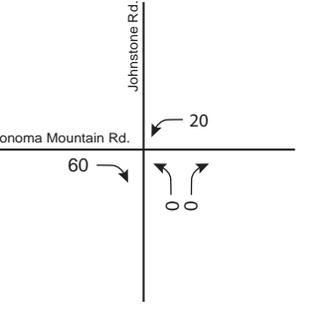


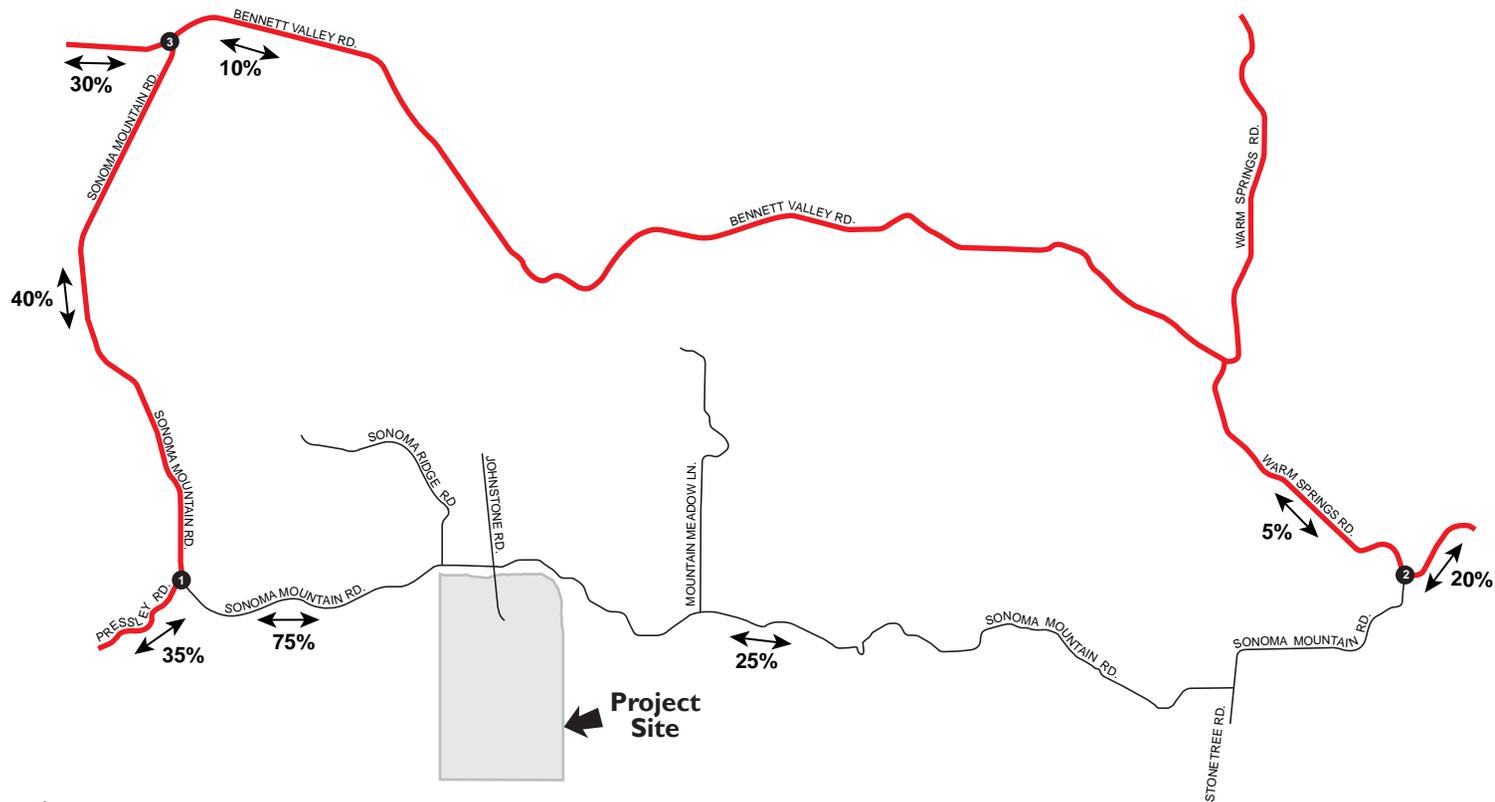
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- Study Intersection
- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- [XX] Weekend Peak Hour Trips
- XX% Trip Distribution



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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.	Project Driveway Johnstone Rd. / Sonoma Mountain Rd.
			



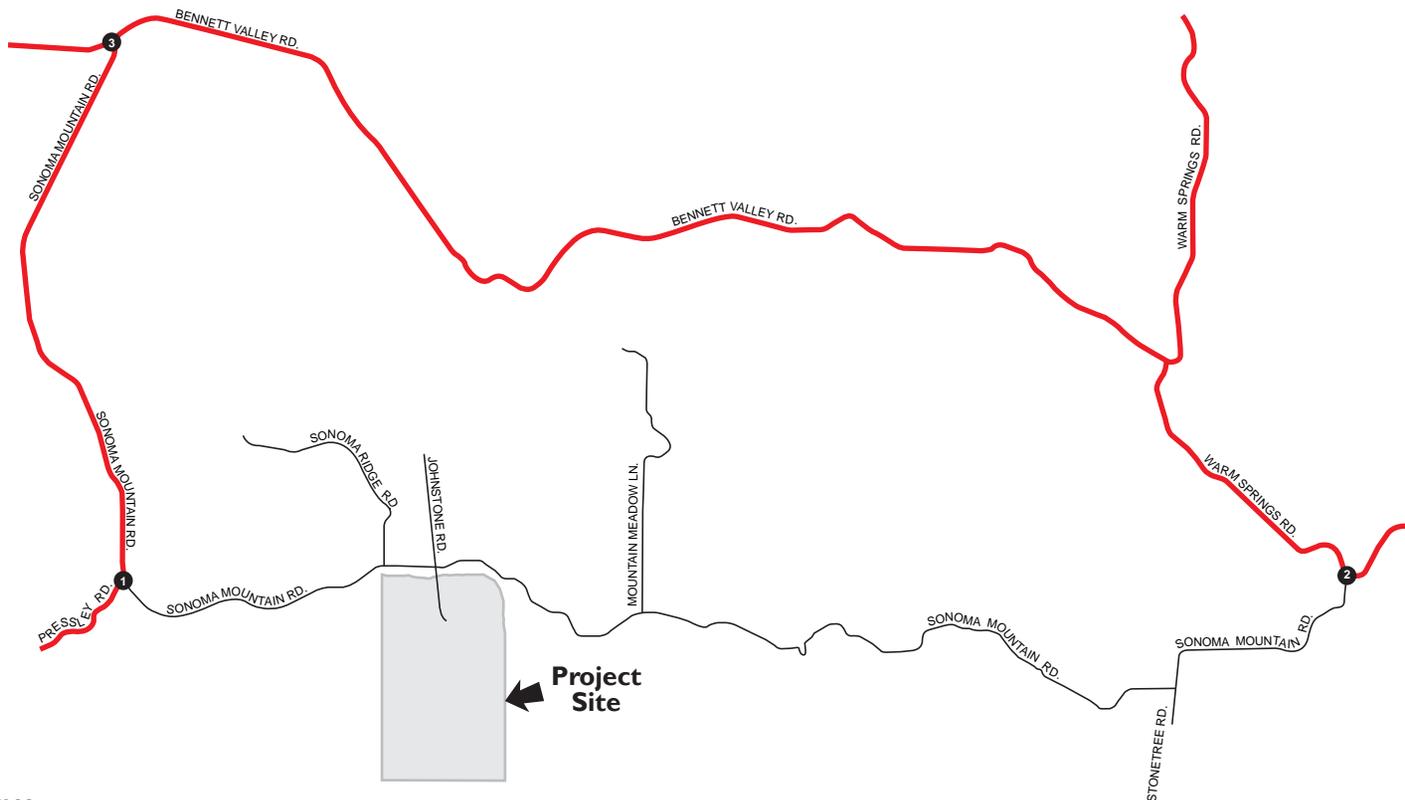
LEGEND

- Study Intersection
- XX Weekend Special Event Peak Hour Volumes
- XX% Trip Distribution



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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.
<p>Pressley Rd. 19 (22) [16] 10 (15) [22]</p> <p>Sonoma Mountain Rd. 26 (21) [20] 8 (4) [15]</p> <p>Sonoma Mountain Rd. 7 (11) [11] 16 (19) [36]</p>	<p>Warm Springs Rd. 113 (214) [112] 12 (10) [15]</p> <p>Sonoma Mountain Rd. 151 (133) [85] 2 (1) [1]</p> <p>Sonoma Mountain Rd. 11 (2) [2] 0 (9) [13]</p>	<p>Bennett Valley Rd. 145 (232) [129] 6 (6) [8]</p> <p>Sonoma Mountain Rd. 172 (171) [164] 32 (48) [81]</p> <p>Sonoma Mountain Rd. 81 (63) [94] 9 (4) [18]</p>



LEGEND

- Study Intersection
- Stop Sign
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- [XX] Weekend Peak Hour Volumes



SOURCE: TJKM

Existing plus Project Conditions Traffic Volumes, Lane Geometry and Controls - Scenario 1

Belden Barns Farmstead & Winery Draft EIR

FIGURE 3.9-6a

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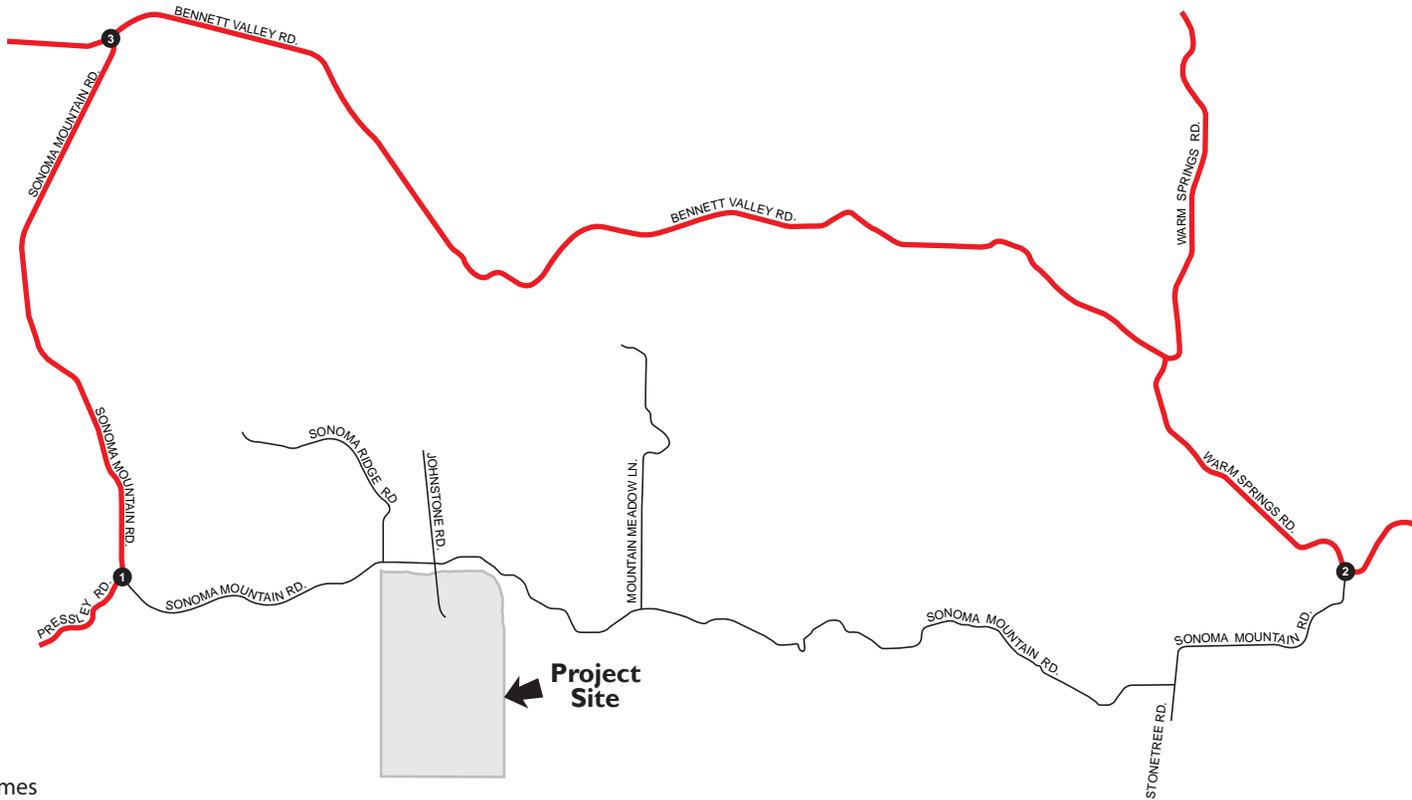
Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.



LEGEND
● Study Intersection
⬇ Stop Sign
XX Weekend Special Event Peak Hour Volumes

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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.
<p>Pressley Rd. approaches from the left with 43 (34) [33] and 2 (3) [15]. Sonoma Mountain Rd. approaches from the top with 31 (36) [26] and 3 (21) [25].</p>	<p>Warm Springs Rd. approaches from the left with 248 (218) [139] and 2 (2) [0]. Sonoma Mountain Rd. approaches from the top with 185 (351) [184] and 13 (15) [20].</p>	<p>Bennett Valley Rd. approaches from the left with 282 (281) [269] and 43 (75) [125]. Sonoma Mountain Rd. approaches from the top with 238 (381) [212] and 7 (10) [10].</p>

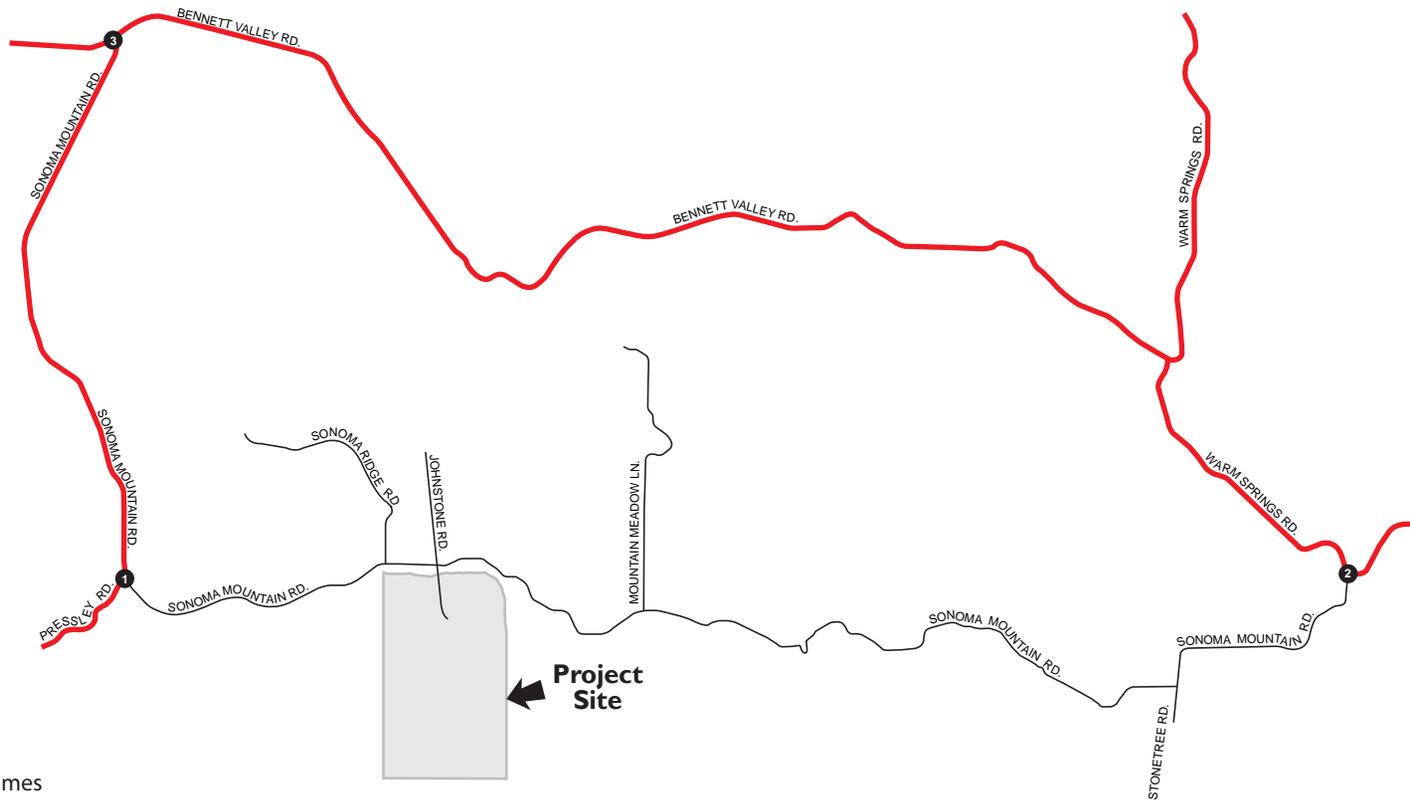


LEGEND

- Study Intersection
- Stop Sign
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- [XX] Weekend Peak Hour Volumes

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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.
<p>Pressley Rd. / Sonoma Mountain Rd. intersection diagram with peak hour volumes:</p> <ul style="list-style-type: none"> Northbound Sonoma Mountain Rd. (from Pressley Rd.): 31 (36) [26], 11 (23) [32] Southbound Sonoma Mountain Rd. (to Pressley Rd.): 43 (34) [33], 9 (5) [21] Eastbound Sonoma Mountain Rd. (from Bennett Valley Rd.): 11 (12) [14], 26 (25) [55] Westbound Sonoma Mountain Rd. (to Bennett Valley Rd.): 18 (3) [3], 0 (12) [19] 	<p>Warm Springs Rd. / Sonoma Mountain Rd. intersection diagram with peak hour volumes:</p> <ul style="list-style-type: none"> Northbound Sonoma Mountain Rd. (from Warm Springs Rd.): 185 (351) [184], 17 (16) [23] Southbound Sonoma Mountain Rd. (to Warm Springs Rd.): 248 (218) [139], 3 (2) [1] Eastbound Sonoma Mountain Rd. (from Bennett Valley Rd.): 18 (3) [3], 0 (12) [19] Westbound Sonoma Mountain Rd. (to Bennett Valley Rd.): 18 (3) [3], 0 (12) [19] 	<p>Bennett Valley Rd. / Sonoma Mountain Rd. intersection diagram with peak hour volumes:</p> <ul style="list-style-type: none"> Northbound Sonoma Mountain Rd. (from Bennett Valley Rd.): 238 (381) [212], 9 (10) [12] Southbound Sonoma Mountain Rd. (to Bennett Valley Rd.): 282 (281) [269], 49 (77) [130] Eastbound Sonoma Mountain Rd. (from Warm Springs Rd.): 133 (98) [151], 15 (5) [28] Westbound Sonoma Mountain Rd. (to Warm Springs Rd.): 133 (98) [151], 15 (5) [28]



- LEGEND**
- Study Intersection
 - Stop Sign
 - XX AM Peak Hour Volumes
 - (XX) PM Peak Hour Volumes
 - [XX] Weekend Peak Hour Volumes

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Intersection #1 Pressley Rd. / Sonoma Mountain Rd.	Intersection #2 Warm Springs Rd. / Sonoma Mountain Rd.	Intersection #3 Bennett Valley Rd. / Sonoma Mountain Rd.
<p>Pressley Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes: 26, 57, 33, 43, 8, 48.</p>	<p>Warm Springs Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes: 184, 36, 139, 4, 2, 16.</p>	<p>Bennett Valley Rd. / Sonoma Mountain Rd. intersection diagram showing traffic volumes: 212, 18, 269, 149, 146, 26.</p>

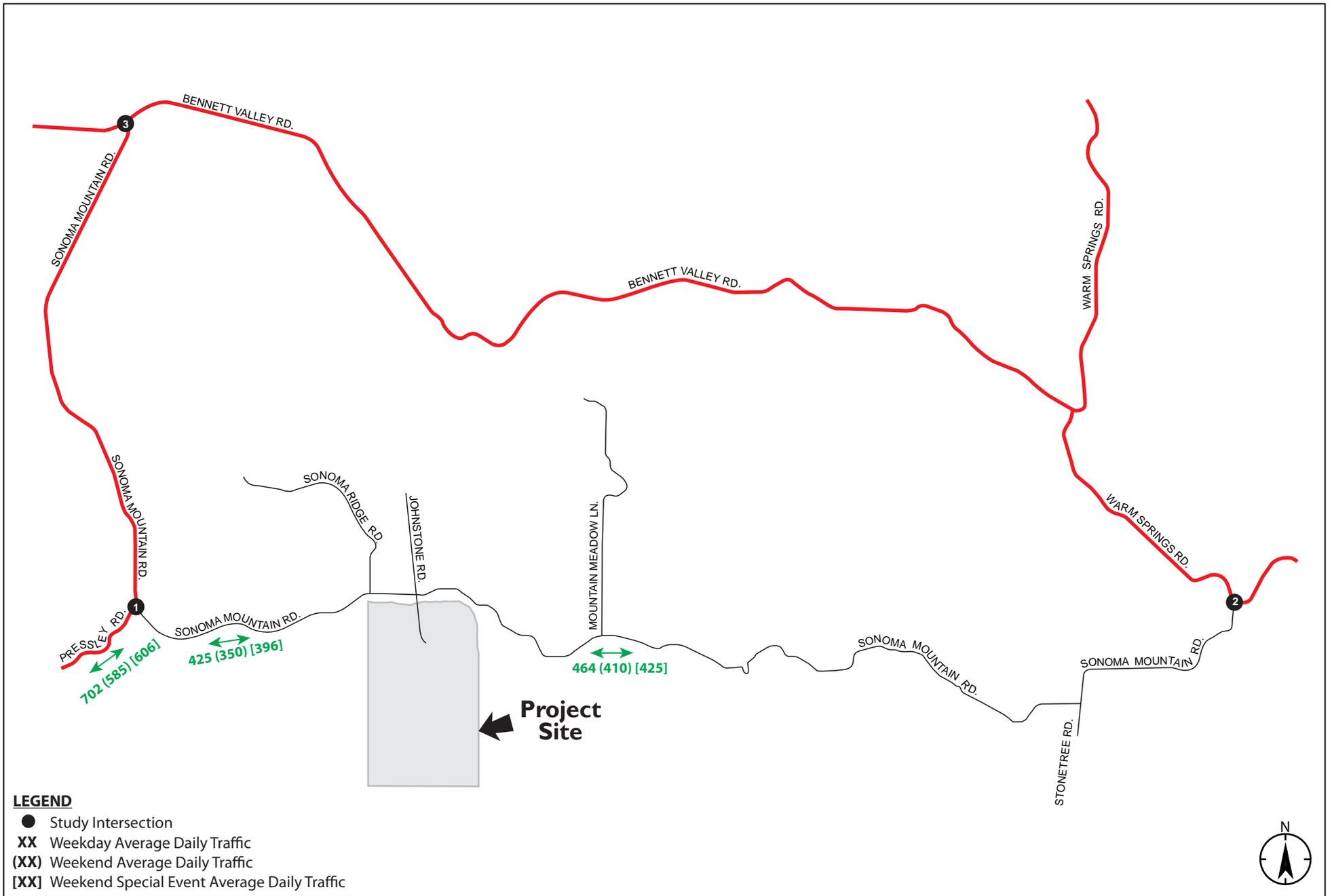


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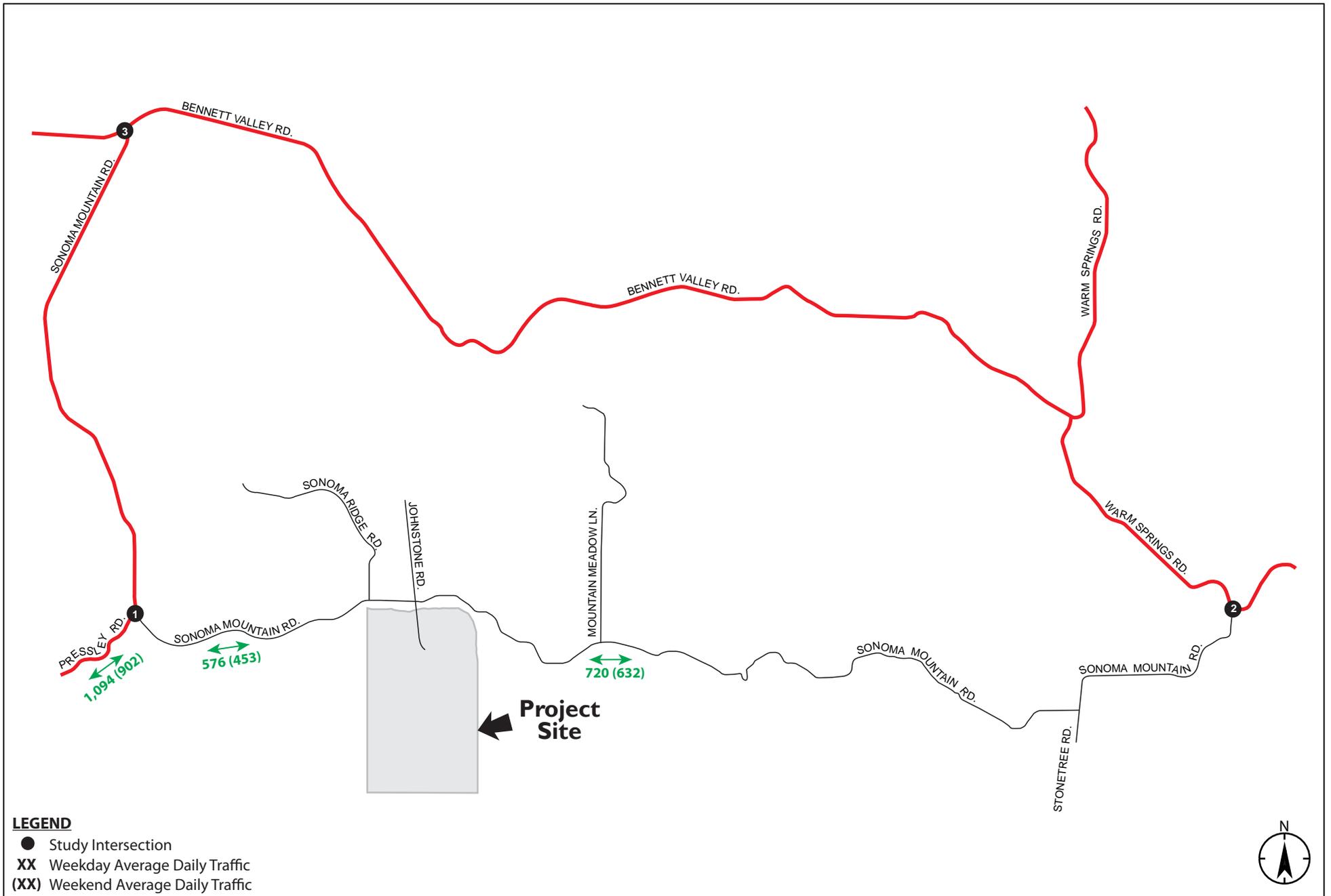
- Study Intersection
- ⬮ Stop Sign
- XX Weekend Special Event Peak Hour Volumes



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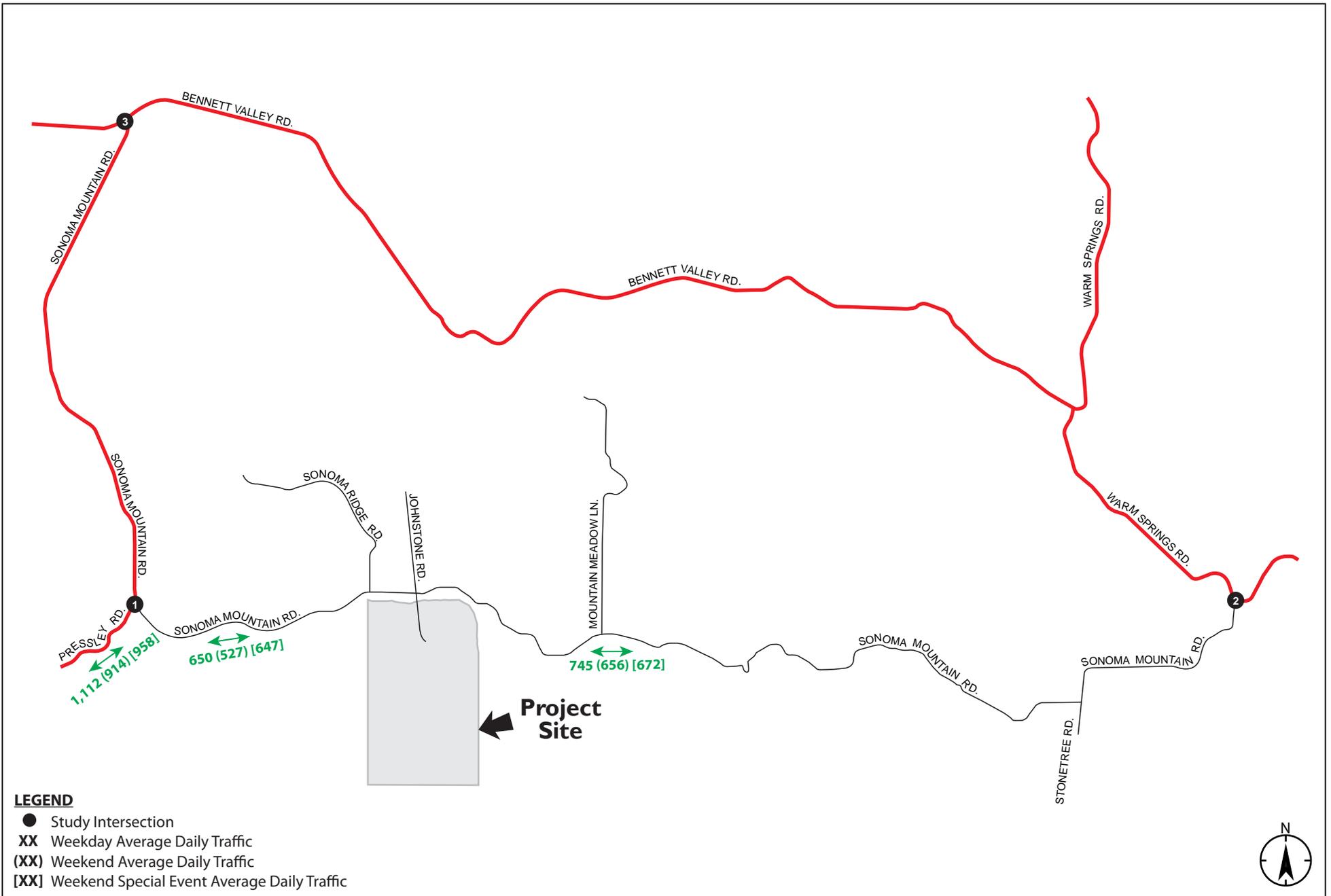
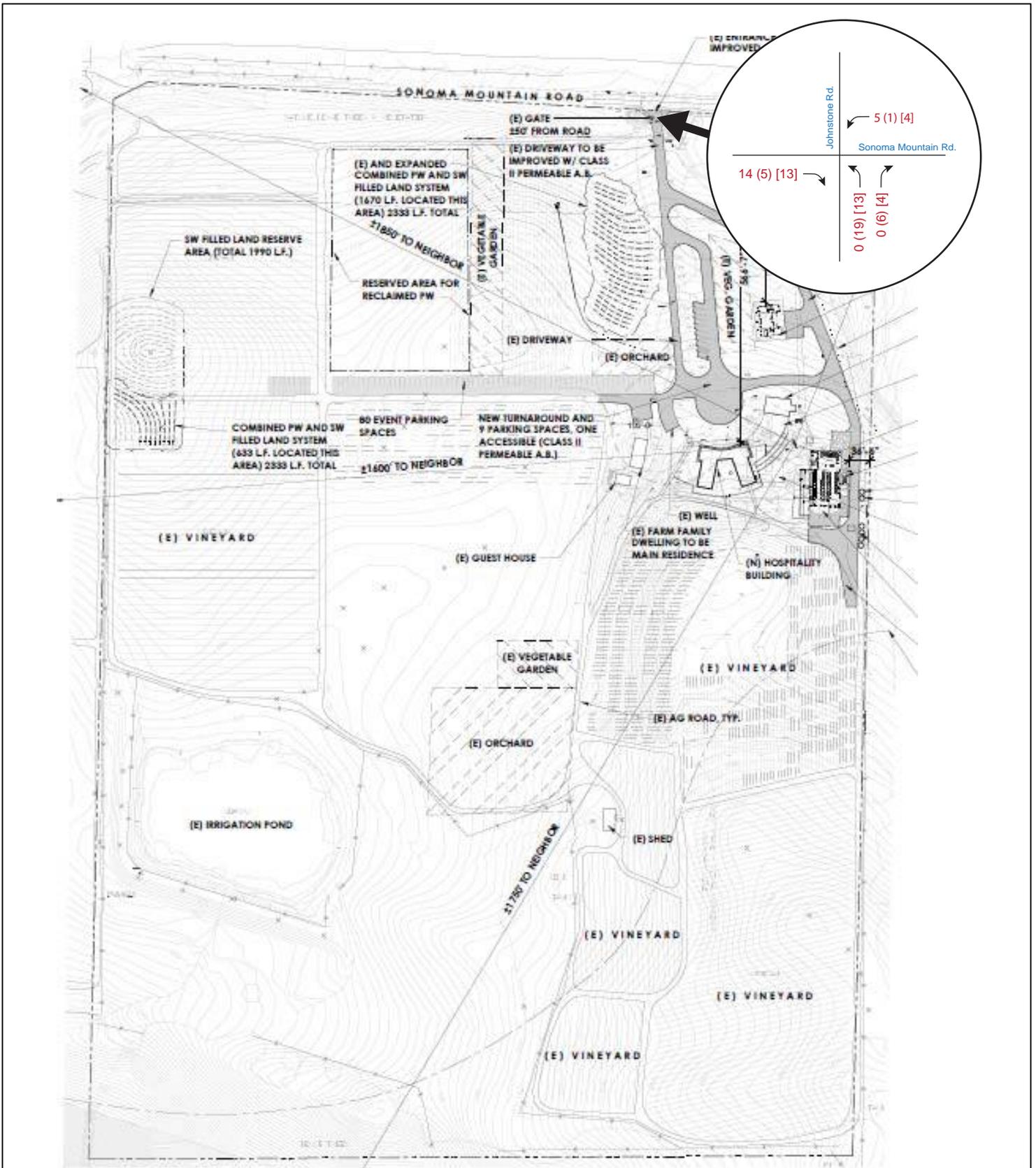


FIGURE 3.9-9c
 Cumulative plus Project Conditions Average Daily Traffic

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Note: Project only trips are illustrated



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CHAPTER 4 OTHER CEQA CONSIDERATIONS

4.1 INTRODUCTION

This chapter includes the following other considerations that are required to be discussed in an environmental impact report (EIR):

- Effects Not Found to be Significant (Section 4.2)
- Significant and Unavoidable Environmental Impacts (Section 4.3)
- Significant and Irreversible Environmental Effects (Section 4.4)
- Growth Inducement (Section 4.5)

4.2 EFFECTS FOUND NOT TO BE SIGNIFICANT

Section 15128 of the California Environmental Quality Act (CEQA) guidelines requires that an EIR briefly describe potential environmental effects that were determined not to be significant and therefore were not discussed in detail in the EIR. Based on the analysis provided in the Initial Study/Mitigated Negative Declaration and summarized in Section 3.1 of this EIR, the proposed project would not result in significant impacts related to the following topics, which are not further evaluated in the EIR:

- Agricultural and Forest Resources
- Cultural Resources
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Utilities and Service Systems

Additional information and discussion regarding the effects found not to be significant can be found in the Initial Study, which is included as Appendix B of this EIR.

4.3 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

The environmental effects of the proposed project are identified and discussed in detail in the Chapter 3 analysis and are summarized in the Executive Summary. Implementation of the

project-specific mitigation measures identified throughout the Chapter 3 analysis would reduce all significant impacts to less-than-significant levels. Therefore, the project would not result in any significant and unavoidable environmental impacts.

4.4 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL EFFECTS

The CEQA Guidelines mandate that an EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (CEQA Guidelines, Section 15126(c)). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether the proposed project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

Implementation of the proposed project would expand existing agricultural uses established on the project site with an on-site production facility, tasting room, and special events. Operation of the proposed project would require the use of energy; however, the project is relatively small and would not be considered resource-intensive or involve a large commitment of nonrenewable resources. Construction of the proposed project would include use of natural resources in the form of construction supplies including lumber and other forest products and fossil fuels such as gasoline and oil. These resources are frequently used in most general construction projects and are potentially nonrenewable.

Implementation of the proposed project would commit future generations to use of this site for agriculture and agricultural processing for the foreseeable future. The project site has historically supported agricultural uses, which are consistent with the land use and zoning designations, and implementation of the proposed project would not result in rezoning or changing land use designations. Development on the project site would fit largely within the existing development footprint, and much of the land would retain its historical agricultural use.

The project is not expected to result in the wasteful use of energy or other nonrenewable resources. The proposed project would utilize environmentally sustainable methods in all

agriculture, production, and events. Proposed infrastructure improvements, discussed in detail in Chapter 2, Project Description, would be implemented to conserve water, effectively collect stormwater, facilitate soil infiltration, and reduce energy used to treat wastewater.

Overall, the proposed project would not result in significant and irreversible effects on the environment.

4.5 GROWTH INDUCEMENT

CEQA requires a discussion of ways in which the proposed project could induce growth. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth, or the construction of additional housing, either directly or indirectly in the surrounding environment (CEQA Guidelines, Section 15126.2[d]). New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment.

As discussed in Chapter 2, Project Description, the project would provide multiple infrastructure improvements to the site including water storage and distribution systems, a combined sanitary wastewater and process wastewater management system, stormwater collection and conveyance, and installation of fire protection hydrants, electrical and telecom, and water and gas piping. Although the project would expand and improve infrastructure it would not do so in a way that facilitates future growth. All proposed utility infrastructure improvements would be located on site and sized to adequately serve the existing residences and vineyards and the proposed project uses with limited future growth potential.

Development of the proposed project would generate construction-related employment during the 12–18 month construction period. As discussed in Chapter 2, Project Description, an average of 10–12 workers would be on site daily for the duration of the construction period and are expected to be primarily local. Given the small number of workers required and the number of workers available in Sonoma County, it is not likely that a substantial number of workers would relocate to the County to work on construction of the proposed project. Due to the short duration and temporary nature of construction jobs, the increase in jobs during the construction period is not expected to be growth inducing.

Operation of the project would generate five full-time and four part-time employees for most of the year with seven additional employees on site during harvest season. The project is expected

to directly induce limited growth by building one agricultural employee housing unit for employees on site. The additional part-time employees and temporary harvest season employees are expected to be local workers. The few part-time and seasonal jobs generated by the proposed project are not expected to substantially induce growth in the region.

CHAPTER 5 ALTERNATIVES

5.1 INTRODUCTION

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives” (14 CCR 15126.6(a)). An EIR “must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation” (14 CCR 15126.6(a)). The alternatives discussion is required even if these alternatives “would impede to some degree the attainment of the project objectives, or would be more costly” (14 CCR 15126.6(b)).

The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact “feasible.” The final decision regarding the feasibility of alternatives lies with the decision maker for a given project who must make the necessary findings addressing the feasibility of alternatives for avoiding or substantially reducing a project’s significant environmental effects (California Public Resources Code Section 21081; see also 14 CCR 15091).

5.2 PROJECT OBJECTIVES

The primary objectives of the proposed project are set forth in Chapter 2, Project Description, of the EIR and consist of the following:

1. Create an economically self-sufficient and viable business growing and selling wine and farmstead goods.
2. Construct and operate a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine each year, using primarily agricultural products grown on site.
3. For the purpose of on-site marketing, create an on-site experience that attracts and connects customers to a site dedicated to small-scale, integrated, sustainable farming and to the farmers, winemakers, and cheesemakers.
4. Provide on-site tasting and direct-to-consumer sales of farmstead products and wine, by appointment only.
5. Promote environmentally sustainable operations in all agriculture, production, and events.
6. Provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

7. Provide agricultural promotional events that promote the wine and farmstead products grown and produced on site.

5.3 ALTERNATIVES CONSIDERED BUT REJECTED

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are potentially feasible, and therefore merit in-depth consideration, and which are not feasible. Alternatives whose implementation is remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines, Section 15126.6(f)(3)). Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site. Alternative selection should focus on alternatives that would avoid or substantially lessen any of the significant effects of the project (14 CCR 15126.6(a)).

5.3.1 Alternate Site

Analysis of alternative locations is generally most appropriate in the land use context where changes in zones or planning documents are contemplated. The proposed use is consistent with the LIA (Land Intensive Agriculture) zoning of the parcel. The applicant does not own any other property in the area that would be suitable for the entirety of the proposed project. Since the applicant currently owns the project site, the proposal is compatible with the applicable zoning, and it is not feasible for the applicants to reasonably acquire another site for the proposed project, an alternate site alternative is not evaluated further in this EIR. However, the alternatives evaluated below include an alternative with an off-site tasting room, with all other components of the project remaining on the project site.

5.3.2 Reduced Irrigation Alternative

A reduced irrigation alternative was considered that would require the project to continue irrigating from the pond only instead of increasing pumping from the well for irrigation of landscaping, vegetable garden, and orchard. This alternative was rejected because it would not avoid or substantially lessen any significant impacts of the project. As proposed, the project would use the pond for 80% of additional irrigation water needs, with only 20% of additional irrigation water coming from the well. As described in Section 3.7, Hydrology and Water Quality, the project's water demand would have negligible effects on the underlying aquifer.

5.3.3 Reduced Cheese Production Alternative

An alternative was considered that would limit the amount of cheese produced on site from 10,000 pounds to 5,000 pounds. Cheese production would require importation of milk, use of water, and use of electricity; however, as described in Chapter 3 of this EIR, no significant impacts would occur as a result of cheese production alone. Therefore, an alternative to reduce cheese production would not avoid or substantially lessen any significant impacts of the project. This alternative was rejected from further consideration in the EIR.

5.4 ALTERNATIVES ANALYSIS

This section discusses four alternatives to the proposed project, including the No Project Alternative. The No Project Alternative is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines that examines the environmental effects if the project were not to proceed. The No Tasting Room Alternative, Off-Site Tasting Room Alternative, and No Events Alternative are also discussed as part of the “range of reasonable alternatives” as other meaningful alternatives to the proposed project, which could result in substantial reductions in project impacts while achieving most of the basic objectives of the project. Each of these alternatives is described below.

5.4.1 No Project Alternative

The No Project Alternative considers the effects of foregoing the project entirely and leaving the project site in its current condition. Under the No Project Alternative, no buildings or structures would be demolished, and no new buildings would be constructed on the project site. The project site would continue to operate in its existing capacity with the existing barn, residences, vineyards, fruit orchards, and vegetable crops remaining in their current locations. There would be no new production facility for wine and cheese making and no tasting room; nor would there be agricultural promotional events held on the site without proper permits.

This alternative would not meet any of the project objectives because it would limit operations to those currently occurring on the site. The No Project Alternative would not allow for the creation of an economically self-sufficient and viable business growing and selling farmstead goods, would not allow for the operation of a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine each year, and would not provide on-site tasting and direct-to-consumer sales and events, because there would be no production facility for wine and farmstead goods on site and there would be no tasting room or retail sales on site. This alternative would limit opportunities for small-scale sustainable farmers and food artisans to operate on site since there would be no production facility or tasting room for them to utilize. This alternative would also limit the ability to provide agricultural promotion

events that promote wine and farmstead goods grown and produced on site since events would not be allowed without special permits.

A comparison of impacts under the No Project Alternative and the proposed project is provided below.

Aesthetics

Under the No Project Alternative, the project site would remain in its existing state and there would be no additional development on the site that would potentially alter the existing visual character or quality of the site. In addition, there would be no new sources of light or glare introduced to the site, which would avoid the potentially significant but mitigatable project impact due to the addition of new sources of light on the project site. The No Project Alternative would therefore reduce aesthetics impacts compared to the proposed project, although in both cases impacts would be less than significant with mitigation.

Air Quality

Under the No Project Alternative, the project site would remain in its current state, and there would be no emissions associated with construction or operations on the project site beyond the existing conditions. This alternative would eliminate construction emissions, thereby avoiding the significant but mitigatable impact of construction air emissions that would result from the proposed project. In addition, the net new operational emissions associated with the project, including vehicle emissions from visitors and trucks exporting goods, would not occur under this alternative. Although existing vehicle and truck trips, including those from off-hauling of grapes, associated with project operation would continue under this alternative, the overall trips and emissions associated with the site would be reduced compared to the proposed project, which would include an overall increase in trips from existing conditions. This alternative would therefore result in reduced construction and operational emissions compared to the proposed project, although in both cases impacts would be less than significant with mitigation.

Biological Resources

Under the No Project Alternative, the project site would remain in its current state, and there would be no alterations to the site that would potentially impact biological resources. Eliminating the demolition of existing structures, construction of new structures, and introduction of additional operational activities on the project site would avoid all potentially significant but mitigatable project impacts to biological resources. This alternative would result in reduced biological impacts compared to the proposed project, although in both cases impacts would be less than significant with mitigation.

Geology and Soils

Under the No Project Alternative, the site would remain in its existing condition, and there would be no grading, ground disturbance, or construction on the project site. Consequently, this alternative would avoid all potential geologic, soil, and seismic impacts associated with the proposed project, although continued agricultural ground disturbance would be foreseeable. Specifically, this alternative would avoid impacts related to development on unstable soils or slopes and soil erosion during project construction. This alternative would result in reduced impacts to geology and soils compared to the proposed project, although in both cases impacts would be less than significant with mitigation.

Greenhouse Gas Emissions

Under the No Project Alternative, the project site would remain in its existing condition, and there would be no greenhouse gas (GHG) emissions associated with construction or operations on the project site beyond the existing conditions. This alternative would eliminate GHG emissions associated with construction and net new GHG emissions associated with operation including vehicle emissions, grid electricity usage, and solid waste and water/wastewater conveyance. This alternative would result in reduced construction and operational GHG emissions compared to the proposed project, although, impacts would be less than significant in both cases.

Hydrology and Water Quality

Under the No Project Alternative, the project site would remain in its current condition, and there would be no activities that would affect surface and groundwater sources beyond the existing conditions. This alternative would not increase water demand requirements and consequently would reduce impacts to groundwater supplies and groundwater levels. This alternative would also eliminate construction on the project site, which would avoid impacts related to altering the drainage pattern, increasing sediment release during project construction, and violating water quality standards. However, the Belden Barns vineyards would not have the benefit of the proposed winery process wastewater that would provide an additional water source for vineyard irrigation. This alternative would result in reduced impacts to hydrology and water quality compared to the proposed project, although in both cases impacts would be less than significant.

Noise

Under the No Project Alternative, the project site would remain in its current condition, and there would be no addition of new noise-generating activities beyond existing conditions. This alternative would not include any construction on the project site, which would avoid all groundborne vibration and short-term intermittent noise associated with construction activities.

This alternative would not introduce more intensive land uses or new noise generating sources or activities and would avoid impacts associated with an increase in ambient noise levels above those existing without the project. Overall, this alternative would result in reduced noise impacts compared to the proposed project, although in both cases impacts would be less than significant.

Transportation and Traffic

Under the No Project Alternative, the project site would remain in its current condition, and there would be no change in existing transportation or traffic patterns on or around the project site. This alternative would eliminate construction and all traffic associated with construction activities, equipment, and staging areas. While this alternative would not eliminate trips associated with export of grapes, it would eliminate net new traffic trips associated with additional employees, visitors, and export of wine and farmstead goods. Elimination of these trips would subsequently avoid conflicts with applicable plans, ordinances, and policies establishing measures of effectiveness for performance of the circulation system including levels of service. This alternative would also avoid an increase in trips generated on Sonoma Mountain Road, thereby avoiding any increase in hazards due to design features, inadequate emergency access, and conflicts with policies and programs related to bicycles, pedestrians and public transit. Overall, this alternative would result in reduced transportation and traffic impacts compared to the proposed project, although in both cases impacts would be less than significant.

5.4.2 No Tasting Room Alternative

The No Tasting Room Alternative would eliminate operation of the tasting room out of the proposed hospitality building, but would not eliminate the hospitality building entirely. Under this alternative, the hospitality building would be reduced in size to 1,517 square feet, and the remainder of the project site would be developed the same as the proposed project. The hospitality building would include a commercial kitchen for the processing of farmstead goods, a demonstration room for use during events, restrooms, and support spaces. Two additional acres of crops and orchard would be added, and all other agricultural operations would be the same as the proposed project. The water demand and sanitary wastewater generation for the site would be incrementally reduced under this alternative since the hospitality building would be reduced in size and there would be no visitors associated with use of the tasting room. Without the tasting room on site, there would also be four fewer employees on site. The on-site well would provide water for processing, domestic, landscape/livestock, and emergency fire suppression uses, as proposed under the project. The eight agricultural promotional events proposed annually would occur under this alternative, but no private tasting would be allowed. The production facility would operate as proposed under the project and the hospitality building would be used for processing farmstead goods. The farmstead products and wine produced on the site would not be available for tasting or for purchase on the site, except at promotional events. These products

would need to be shipped off site for tasting and sales, which would increase the number of truck trips to and from the site.

Since the No Tasting Room Alternative would allow for the production of wine and farmstead products on the project site, objectives related to operating a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine per year and providing agricultural promotional events to promote wine and farmstead products would still be met. This alternative would not meet the objective of providing on-site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met but to a lesser degree than the proposed project: create an economically self-sufficient and viable business growing and selling wine and farmstead goods; create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; promote environmentally sustainable operations in all agriculture, production and events; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

A comparison of impacts under the No Tasting Room Alternative and the currently proposed project is provided below.

Aesthetics

Under the No Tasting Room Alternative, the property would be developed much in the same way as the proposed project but would reduce the hospitality building to 1,517 square feet. Demolition of existing buildings and construction of the agricultural employee housing unit, a smaller hospitality building, and the production facility would still take place. Construction of these structures would alter the visual character of the site; however, the total project footprint would be reduced. The visual character of the site would not change substantially by reducing the size of the hospitality building since all of the constructed buildings would still be visible, but the project's overall visibility from the viewpoints examined in Section 3.1, Aesthetics, would be slightly reduced. This alternative would not change the site's visual dominance, and the project would still be classified as subordinate (see Table 3.2-2). New structures would still introduce sources of lighting, especially for facility lighting and security and safety lighting; however, there would be slightly less lighting with the reduction in size of the hospitality building. This alternative would very slightly reduce the extent of visual changes to the project site and lighting impacts, although in both cases impacts to aesthetics would be less than significant with mitigation.

Air Quality

Under the No Tasting Room Alternative, demolition of existing structures and construction of new buildings would be the same as the proposed project with the exception of the reduced size of the hospitality building. This would slightly reduce the duration of construction activities, the

amount of construction materials required, and vehicle trips associated with transport of building materials. Impacts related to construction emissions including violation of any air quality standards, cumulative contribution to criteria air pollutants, and exposure of sensitive receptors to substantial pollution concentrations would be slightly reduced compared to the proposed project. Once operational, this alternative would result in reduced visitor and employee vehicle trips and associated emissions since there would be no tasting room on site. Eliminating the tasting room would reduce daily vehicle trips by 34 during non-harvest season and by 48 during harvest season (refer to Table 3.9-6 in Transportation and Traffic). However, without the ability to sell farmstead products and wine on site, additional trucks would be required to export these products, which would result in increased emissions from trucks. The on-site operations would still involve fermenting wine and processing farmstead goods; therefore, mitigation measure MM-AQ-1 would be implemented to reduce potential odor impacts to less-than-significant levels. This alternative would likely result in slightly reduced construction-related and operational air quality impacts compared to the proposed project, although in both cases impacts would be less than significant with mitigation.

Biological Resources

Under the No Tasting Room Alternative, the project site would undergo similar alterations as proposed under the project with the exception of the reduced size of the hospitality building. However, demolition of the existing barn would occur, which holds the most potential to host special-status nesting birds and bats. Construction activities would still require the implementation of mitigation measures MM-BIO-1 through MM-BIO-3. Additionally, since this alternative would include the addition of 2 acres of crops and orchards, livestock grazing, and the milking barn, impacts to special-status amphibian and reptile species would be the same as the proposed project. Mitigation measures MM-BIO-4 and MM-BIO-5 would still be required to establish protections on the intake structure in the pond and a buffer zone during project construction and operation.

Other impacts related to biological resources would not change by eliminating operation of the tasting room. Potential biological impacts associated with an incrementally smaller development footprint would be similar to those that would occur under the proposed project, although in both cases impacts would be less than significant with mitigation.

Geology and Soils

Under the No Tasting Room Alternative, soil disturbance and the overall project footprint would be reduced compared to the proposed project since the hospitality building would be reduced in size. Reducing the size of the hospitality building would not change the probability or severity of ground shaking, seismic-related ground failure, or landslides. Reducing the size of the hospitality building would decrease the potential impacts from locating buildings on unstable or expansive

soils. Impacts under this alternative would be reduced compared to the proposed project, although, in both cases impacts would be less than significant.

Greenhouse Gas Emissions

Under the No Tasting Room Alternative, demolition and construction on the site would be similar to the proposed project although the hospitality building would be reduced to 1,517 square feet, resulting in a slight reduction in construction GHG emissions. Once operational, this alternative would result in a reduction in GHG emissions associated with tasting room visitor and employee vehicle trips.. Eliminating the operation of the tasting room would reduce daily vehicle trips by 34 during non-harvest season and by 48 during harvest season (refer to Table 3.9-6 in Transportation and Traffic).. The hospitality building would still utilize a commercial kitchen for the processing of farmstead goods. Eliminating the direct-to-consumer sales of farmstead products and wine on site would result in an increase in truck trips and associated emissions to export these products. Although there is a potential for GHG emissions to increase with additional trucks exporting wine and farmstead goods, this would be offset by the reduction in visitor and employee trips and emissions. This alternative would likely result in a slight reduction in GHG emissions compared to the proposed project, although in both cases impacts would be less than significant.

Hydrology and Water Quality

Under the No Tasting Room Alternative, the tasting room would not be operated, and the hospitality building size would be reduced to 1,517 square feet, which would incrementally reduce the amount of new impervious surface area compared to the project. The incremental reduction in the project footprint would reduce the amount of potential runoff from the site during construction. Additionally, potential impacts associated with runoff, sedimentation, and erosion, such as water quality and the potential to exceed the capacity of existing or planned stormwater drainage systems, would all be reduced slightly. Reducing the size of the hospitality building would incrementally reduce the project's total water demand by eliminating water use associated with visitors and operation of the tasting room. Impacts under this alternative would be slightly reduced compared to the proposed project, although, in both cases impacts would be less than significant with mitigation.

Noise

Under the No Tasting Room Alternative, construction and operation on the project site would be similar to the proposed project with the exception of reducing the size of the hospitality building and eliminating operation of the tasting room. Construction activities would generate temporary, intermittent noise that could expose nearby receptors to elevated noise levels and generate limited groundborne vibration; however, the duration of construction would be slightly reduced

since the hospitality building would be smaller than the proposed project. This would result in a slight reduction in construction noise compared to the proposed project. Once operational, there would also be a reduction in transportation noise since the tasting room visitors and employees would not be driving to and from the site. However, as described previously, the farmstead products and wine produced on site would need to be transported off site in trucks since it would not be sold in the tasting room. Additionally, the noise generated from the mechanical equipment associated with the production facility would be the same as under the proposed project since this component of the project would not change under this alternative. Noise impacts from tasting would be reduced on site, but noise impacts from promotional events could remain. This alternative would therefore result in a slight reduction in noise impacts during construction and daily noise associated with on-site tasting activities, although in both cases impacts would be less than significant with mitigation.

Transportation and Traffic

Under the No Tasting Room Alternative, operational vehicle trips associated with on-site tasting would be eliminated. Eliminating the operation of the tasting room would reduce daily vehicle trips by 34 during non-harvest season and by 48 during harvest season (refer to Table 3.9-6 in Transportation and Traffic). However, without the ability to sell farmstead products and wine on site, these goods would need to be exported from the site in trucks. The reduction in vehicle trips would be slightly offset by the increase in truck trips associated with additional export of goods, but would result in an overall reduction in trip generation compared to the project. Eliminating the operation of the tasting room would not change impacts related to emergency access or public transit and pedestrian facilities, and these impacts would remain less than significant. Impacts under this alternative would be reduced compared to the proposed project, although in both cases impacts would be less than significant.

5.4.3 Off-Site Tasting Room Alternative

The Off-site Tasting Room Alternative would allow for operation of a tasting room off site, most likely in a developed area such as the cities of Santa Rosa or Rohnert Park. The off-site tasting room would operate from 11:00 a.m. to 5:00 p.m. seven days per week, similar to the proposed project. The off-site tasting room would include a commercial kitchen, and all processing of farmstead goods would take place at this off-site location. Wine, cheese, and produce for farmstead products would be transported from the project site to the off-site location for processing, tasting, and sales. Development of the project site would involve demolition of the existing barn, farmworker housing, and non-conforming residences, and construction of the proposed agricultural employee housing and production facility. The hospitality building would not be constructed on site. The impacts of any construction related to the off-site tasting room, if any, are speculative, and would depend upon the site selected. Agricultural promotional events

would be allowed on the site, but tastings and sales of products would be conducted at an off-site location. The production facility would be operated as proposed under the project, except no private tasting would occur. The addition of 2 acres of crops and orchards would be added, and the agricultural operations would be the same as the proposed project. The water supply requirements for the site would be slightly reduced without construction of the hospitality building and operation of the tasting room; however, operation of an off-site tasting room would require water, wastewater, and other utility infrastructure elsewhere.

This alternative would meet objectives related to operating a farmstead and winery capable of producing approximately 10,000 pounds of cheese and approximately 10,000 cases of wine per year, promoting environmentally sustainable operations in all agriculture, production and events, providing agricultural promotional events that promote the wine and farmstead products grown and produced on site and creating an economically self-sufficient and viable business growing and selling wine and farmstead goods. Locating the tasting room off site would not meet the objectives of providing on-site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met but to a lesser degree than the proposed project: create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

A comparison of impacts under the Off-Site Tasting Room Alternative and the currently proposed project is examined below.

Aesthetics

Under the Off-Site Tasting Room Alternative, the property would be developed much in the same way as the proposed project but would not include the 3,033-square-foot tasting room. Demolition of existing buildings and construction of the agricultural employee housing unit and production facility would still take place. Construction of these structures would alter the visual character of the site; however, the total project footprint would be reduced. The visual character of the site would not change substantially without the tasting room since the production facility and agricultural employee unit would still be visible, but the project's overall visibility from the viewpoints examined in Section 3.1, Aesthetics, would be slightly reduced. This alternative would not change the site's visual dominance and the project would still be classified as subordinate (see Table 3.2-2). New structures would still introduce sources of lighting especially for facility lighting and security and safety lighting; however, there would be slightly less lighting with the elimination of the tasting room. It is also assumed that the off-site tasting room would be located in an already developed area and would not result in any additional impacts to aesthetics. This alternative would reduce the extent of visual changes to the project site and

would result in reduced lighting impacts compared to the proposed project, although in both cases impacts to aesthetics would be less than significant with mitigation.

Air Quality

Under the Off-Site Tasting Room Alternative, demolition of existing structures and construction of new buildings would be similar to the proposed project with the exception of the tasting room, which would not be built. It is also assumed that the off-site tasting room would be located in an existing building and would not require additional construction. This would reduce the duration of construction activities, the amount of construction materials required, and vehicle trips associated with transport of building materials. Subsequently impacts related to construction emissions including violation of any air quality standards, cumulative contribution to criteria air pollutants, and exposure of sensitive receptors to substantial pollution concentrations would be reduced compared to the proposed project.

Once operational, the visitor and employee vehicle trips and emissions would be shifted from the project site to the off-site tasting room location. Air quality impacts and emissions are regional in nature, so although this alternative would shift vehicle trips from the project site to the off-site tasting room, the emissions associated with these trips would remain in the air basin and would be similar to the project. In addition, trucks would be used to transport farmstead products and wine from the site to the off-site tasting room, which would result in increased emissions from trucks. The potentially significant odor impact would remain unchanged since the project would continue to ferment wine on site. Farmstead goods would be processed at the off-site tasting room location. Mitigation measure MM-AQ-1 would still be implemented to reduce potential odor impacts to less than significant levels. This alternative would result in increased air quality impacts compared to the proposed project, although in both cases impacts are expected to be less than significant with mitigation.

Biological Resources

Under the Off-Site Tasting Room Alternative, the project site would undergo similar alterations as proposed under the project with the exception of construction of the tasting room, which would not be constructed on the site. Eliminating construction of the tasting room would reduce the project's overall building footprint. However, demolition of the existing barn would occur, which holds the most potential to host special-status nesting birds and bats. Construction activities would still require the implementation of Mitigation Measures MM-BIO-1 through MM-BIO-3. It is assumed that the off-site tasting room would be located in an existing developed area and would not require demolition or construction that would potentially impact biological resources.

Since this alternative would include the addition of two acres of crops and orchards, livestock grazing, and the milking barn, impacts to special-status amphibian and reptile species would be the same as the proposed project. Mitigation Measures MM-BIO-4 and MM-BIO-5 would still be required to establish protections on the intake structure in the pond and a buffer zone during project construction and operation.

Other impacts related to biological resources would not change with the off-site tasting room. Potential biological impacts associated with an incrementally smaller development footprint would be similar to those that would occur under the proposed project, although in both cases impacts would be less than significant with mitigation.

Geology and Soils

Under the Off-Site Tasting Room Alternative, soil disturbance and the overall project footprint would be reduced compared to the proposed project since the tasting room would not be built. It is assumed that the off-site tasting room would be located in an existing developed area and would not require demolition or construction that would result in any impacts to geology and soils. Although the same buildings would be demolished under this alternative, there would be potentially less grading required since there would be no tasting room. Eliminating the construction of the tasting room would not change the probability or severity of impacts related to ground shaking, seismic-related ground failure or landslides. Reducing the number of buildings on site would decrease the potential impacts from locating buildings on unstable or expansive soils. Impacts under this alternative would be reduced compared to the proposed project, although, in both cases impacts would be less than significant.

Greenhouse Gas Emissions

Under the Off-Site Tasting Room Alternative, the tasting room would be located at an off-site location, but development of the remainder of the site would remain the same as the proposed project. Once operational, the visitor and employee vehicle trips and emissions would be shifted from the project site to the off-site tasting room location. Although this alternative would shift vehicle trips from the project site to the off-site tasting room, the GHG emissions associated with these trips would still occur and would be similar to the project. In addition, trucks would be used to transport farmstead raw materials, cheese, and wine from the site to the off-site tasting room, which would result in increased emissions from trucks. Additionally, energy and water/waste disposal would be required at the off-site location. As discussed in Section 3.6, Greenhouse Gas Emissions, the proposed project is far below the threshold for a significant contribution to GHG emissions. Even with the increased vehicle emissions associated with transport of goods to the off-site tasting room, impacts related to generation of GHG emissions that may have a significant impact on the environment would be less than significant. This alternative would likely result in additional GHG emissions compared to the proposed project

due to the increase in truck trips required, although in both cases impacts would be less than significant with mitigation.

Hydrology and Water Quality

Under the Off-Site Tasting Room Alternative, the tasting room would not be constructed on the project site, which would incrementally reduce the amount of new impervious surface area compared to the project. The incremental reduction in the project footprint would reduce the amount of potential runoff from the site during construction. Additionally, potential impacts associated with runoff, sedimentation, and erosion such as water quality and the potential to exceed the capacity of existing or planned stormwater drainage systems would all be reduced slightly. Locating the tasting room off-site would also reduce the impact to groundwater depletion and recharge by reducing the project's on-site water demand. Although the project would still require water at the off-site location, it would likely be provided through an existing water supply and would not require increased groundwater pumping. Impacts under this alternative would be slightly reduced compared to the proposed project, although, in both cases impacts would be less than significant with mitigation.

Noise

Under the Off-Site Tasting Room Alternative, noise impacts would be similar to the proposed project. The only potentially significant noise impact under the proposed project would be a temporary increase in ambient noise levels due to construction activities. Construction activities would still occur on the project site, although the duration of these activities may be shorter without the construction of the tasting room on-site. Construction activities would still generate temporary, intermittent noise and limited groundborne vibration that could expose nearby receptors to elevated noise levels, and mitigation measure MM-NOI-1 would still be required.

Once operational, there would also be a reduction in transportation noise since the tasting room visitors and employees would not be driving to and from the site. However, as described previously, the cheese and wine produced on site would need to be transported in trucks to the off-site tasting room. However, the largest source of operational noise is mechanical equipment, which would still be required for the production of wine and cheese. Noise levels generated by mechanical equipment would not exceed the established noise standard, and this impact would remain less than significant. Commercial kitchen equipment would be required for the processing of farmstead goods at the off-site tasting room which could generate some operational noise. Noise impacts from tasting and farmstead product processing would be reduced on-site, but noise impacts from promotional events could remain. Noise impacts related to exposure of persons to or generation of noise levels in excess of the standards established in the General Plan and substantial permanent increase in ambient noise levels in the project vicinity would remain

less than significant. There would be noise associated with operation of the tasting room at the off-site location; however, it is assumed that the tasting room would be located in a developed area and would not generate noise in excess of any standards or cause a substantial increase in ambient noise levels. This alternative would likely result in similar noise impacts as the proposed project, and in both cases impacts would be less than significant with mitigation.

Transportation and Traffic

Under the Off-Site Tasting Room Alternative, daily vehicle trips associated with the tasting room 34 during non-harvest season and by 48 during harvest season (refer to Table 3.9-6 in Transportation and Traffic) would be eliminated from Sonoma Mountain Road; however, these trips would be added to other roadways in the region to access the off-site tasting room. Although the reduction in trips on Sonoma Mountain Road would reduce potential impacts related to safety and pavement deterioration, there would be an increase in truck trips on Sonoma Mountain Road to transport farmstead raw materials, cheese, and wine from the project site to the tasting room. Locating the tasting room off site would not substantially change impacts related to emergency access or public transit and pedestrian facilities, and these impacts would remain less than significant. This alternative would result in similar traffic impacts as the proposed project, although in both cases impacts would be less than significant.

5.4.4 No Events Alternative

The No Events Alternative would eliminate on-site events from the proposed project. This alternative would involve all of the same construction and operations as the proposed project besides the eight annual events. The No Events Alternative would still allow for the production of wine and farmstead products on the project site and operation of the tasting room. This alternative would not meet the project objective to provide agricultural promotional events to promote wine and farmstead products. Since this alternative would allow for the on-site tasting room, the following objectives would be met but to a lesser degree than the proposed project: create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

A comparison of impacts under the No Events Alternative and the currently proposed project is provided below.

Aesthetics

Under the No Events Alternative, the project site would be developed in the same way as the proposed project and would include all of the proposed buildings, landscaping, and other visual features. Although events would cause temporary changes in the visual character of the project

site with the introduction of possible tents, parked cars, and some lighting, these changes would only occur eight times per year and would be limited in duration. The elimination of eight events per year would not have a substantial effect on the significance of aesthetic impacts; therefore, impacts under this alternative would be similar to the proposed project.

Air Quality

Eliminating events would have no effect on construction emissions since all demolition and construction would occur as it would under the proposed project. In addition, operational emissions would be essentially the same as the proposed project since emissions from vehicles for events would only occur eight times per year under the proposed project. The project operations would still involve fermenting wine and processing farmstead goods; therefore, mitigation measure MM-AQ-1 would still be implemented to reduce potential odor impacts to less-than-significant levels. The elimination of vehicle emissions associated with events would not substantially reduce any impacts of the proposed project. Therefore, air quality impacts would be similar to the proposed project and in both cases would be less than significant with mitigation.

Biological Resources

Under the No Events Alternative, no changes to the development of the site would occur that could reduce impacts to biological resources. Potential impacts of the proposed project on biological resources would mainly occur during construction phases. Eliminating events would not avoid potentially significant but mitigatable impacts to biological resources since construction on the project site would not change under this alternative. Specifically, this alternative would still demolish the existing barn which has the potential to host habitat for nesting birds and bats. During construction, mitigation measures MM-BIO-1 through MM-BIO-3 would still be required to reduce potential impacts. Additionally, this alternative would not eliminate the use of the irrigation system to irrigate gardens, orchards, and vineyards, and there would still be a potential to impact special-status amphibians and reptiles. Potential impacts to these species during project construction and operation would be mitigated through implementation of mitigation measures MM-BIO-4 and MM-BIO-5.

Other impacts related to biological resources would not change by eliminating events. Impacts to biological resources would be similar to the proposed project, and in both cases impacts would be less than significant with mitigation.

Geology and Soils

The No Events Alternative would include all of the proposed physical changes to the project site that could potentially impact geology and soils. Elimination of events would not alter

development of the project site. Impacts related to geology and soils under this alternative would therefore be similar to the proposed project and in both cases would be less than significant.

Greenhouse Gas Emissions

Under the No Events Alternative, no changes would occur to the development of the project site. Eliminating events would have negligible effects on GHG emissions since all demolition and construction would occur as it would under the proposed project, and operational emissions would be essentially the same as the proposed project. GHG emissions from vehicles for events would only occur eight times per year under the proposed project. The elimination of vehicle emissions associated with events would not substantially reduce any impacts of the proposed project since these events would occur only eight times per year. Therefore, GHG emissions would be similar to the proposed project and in both cases would be less than significant.

Hydrology and Water Quality

Under the No Events Alternative, development of the project site would be the same as the proposed project. The project site would still be graded and developed, which would not reduce any potential impacts related to drainage alteration, water quality, runoff, sedimentation or erosion resulting from project construction. The project's water demand would not be substantially reduced by eliminating events since they would only occur eight times per year. The project's impacts to groundwater depletion and recharge would remain less than significant. Impacts to hydrology and water quality under this alternative would be similar to the proposed project, and in both cases impacts would be less than significant with mitigation.

Noise

Under the No Events Alternative, construction-related noise would be the same as the proposed project since the site would be developed in the same way. Construction activities would still generate temporary, intermittent noise and limited groundborne vibration, and mitigation measure MM-NOI-1 would still be applied to reduce construction related noise to a less-than-significant level. A majority of the project's operational noise would come from mechanical equipment used for the processing of wine and farmstead products and commercial equipment in the kitchen of the tasting room. This equipment-related noise would not be reduced under this alternative. Eliminating on-site events would reduce on site noise during the events, including on-site traffic noise and non-amplified music. Noise impacts related to exposure of persons to or generation of noise levels in excess of the standards established in the *Sonoma County General Plan 2020*, and substantial permanent increase in ambient noise levels in the project vicinity would remain less than significant. However, noise impacts under this alternative would be slightly reduced compared to the proposed project.

Transportation and Traffic

Under the No Events Alternative, only vehicle trips associated with events would be eliminated. This alternative would not change vehicle trips associated with employees, daily visitors, and regular operational deliveries and exports. Without events, project-generated traffic on Sonoma Mountain Road and the surrounding roadway network would be reduced by 160 trips per event (see Table 3.9-6). Reducing project generated traffic would slightly reduce impacts to bicyclists and any potential safety impacts related to project generated traffic on Sonoma Mountain Road. Eliminating events would not change impacts related to emergency access or public transit and pedestrian facilities and these impacts would remain less than significant. Impacts to traffic and transportation under this alternative would be slightly reduced compared to the proposed project, although in both cases impacts would be less than significant.

5.5 SUMMARY MATRIX

Table 5-1 provides a summary comparison of each alternative with the proposed project. The table also indicates whether the alternative meets the project objectives as defined in Chapter 2, Project Description.

Table 5-1

Environmental Issue	Proposed Project Impacts Prior to Mitigation	Proposed Project Impacts with Mitigation	No Project Alternative	No Tasting Room Alternative	Off-Site Tasting Room Alternative	No Events Alternative
Aesthetics	S	LTS	▼	▼	▼	—
Air Quality	S	LTS	▼	▼	▲	—
Biological Resources	S	LTS	▼	—	—	—
Geology and Soils	S	LTS	▼	▼	▼	—
Greenhouse Gas Emissions	LTS	LTS	▼	▼	▲	—
Hydrology and Water Quality	S	LTS	▼	▼	▼	—
Noise	S	LTS	▼	▼	—	▼
Transportation and Traffic	LTS	LTS	▼	▼	—	▼
Meets Most Project Objectives?	Yes	Yes	No	No	No	Yes

- ▲ Alternative is likely to result in greater impacts to issue when compared to proposed project.
 - Alternative is likely to result in similar impacts to issue when compared to proposed project.
 - ▼ Alternative is likely to result in reduced impacts to issue when compared to proposed project.
- LTS = Less-than-significant impact.
 S = Significant impact.
 SU = Significant and unavoidable impact.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As indicated in Table 5-1, the No Project Alternative would result in the least environmental impacts and would be the environmentally superior alternative. However, Section 15126.6(e)(2) of the CEQA Guidelines states that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. In this case, the environmentally superior alternative is the No Tasting Room Alternative, since it would reduce impacts to aesthetics, air quality, geology and soils, GHG emissions, hydrology and water quality, noise, and transportation and traffic, when compared to the proposed project. However, it should be noted that the proposed project would not result in any significant impacts after implementation of the required mitigation measures.

The No Tasting Room Alternative would meet most, but not all of the project objectives. This alternative would not meet the objective of providing on-site tasting and direct-to-consumer sales of farmstead products and wine. Since this alternative would allow for the agricultural promotional events, the following objectives would be met but to a lesser degree than the proposed project: create an economically self-sufficient and viable business growing and selling wine and farmstead goods; create an on-site experience that attracts and connects customers to small-scale, integrated, sustainable farming; promote environmentally sustainable operations in all agriculture, production and events; and provide opportunities for small-scale sustainable farmers and food artisans to operate on site and develop demand for their products.

5.7 REFERENCES

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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